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ATSUGEWI MORPHOLOGY I: VERB INFLECTION[1]

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1. The class of morphs that follow s ~ š *first person singular* and precede ja· ~ ija· *plural, hortative* in the same utterance is the class of verb roots, e.g. -apsjaw- *swim*. Any one-stress utterance containing such a verb root is a verb form, or, for short, a verb.

2.1. The hortative occurs in the first person plural only, e.g. sapsjáwja· *let's swim*. It is the only form that is predictable from the root in all conjugations, as follows: if the root begins with /s/, the first person morph is si (e.g., sisəʔparə́ja· *let's hurry*); if the root begins with /r/ or /y/, the first person morph is /š/, preceding /r/ but replacing /y/ (e.g. šrukíjja· *let's run*, šutáwja· *let's fall*); otherwise the first person morph is s (e.g. sijtíja· *let's shoot*); the hortative plural morph is -ja· if the root ends in a vowel or in vowel plus semivowel or in /ij/, otherwise it is -ija· (e.g. sohuwíjja· *let's run away*, spistuwáyja· *let's jump*, spuʔmijá· *let's go*).

2.2. The one unpredictable aspect of the hortative is the place of stress. Accordingly, verbs may be divided into two classes: endoaccentual (those which show the stress on some part of the root) and exoaccentual (those which show the stress on the final -já·). Endoaccentual verbs in addition to the examples given above are: yohpáy *dance*, aqá·s *stand up*, ijm *sleep*, pwahy *make fire*, wéymo·m ~ léymo·m *go fishing*, ijy *drink*, yóʔkət *chop* and itú· *shoot*. Exoaccentual verbs in addition to the examples given above are: mahjiw *hunt*, istu· *fly*, iwi *come*, ie·j *sing*, and kwaqə·s *listen*.

3.0. The tense-mode system of Atsugewi is not especially remarkable, comprising two modes, habitual and actual, differentiated in the present only; and, in addition to the present, future, past and present perfect tenses. The truly formidable com-

[1] This paper continues the series begun with Atsugewi Phonology, IJAL 24.215-20 (1958). For a guide to bibliography, see fn. 1 of that paper; to the list should be added the first contribution devoted solely to Atsugewi: An Atsugewi Word List, IJAL 24.213-4 (1958), by A. L. Kroeber. It is a pleasant duty to renew the acknowledgements made in fn. 1 of Atsugewi Phonology, and again to record the assistance of the Social Science Research Council, which, by its grant of a Faculty Fellowship, made possible much of the field work on which this analysis is based. /j/ indicates an affricate rather than a semivowel (see Atsugewi Phonology IJAL 24.215-220, 1958).

plexity of the verb morphology appears in the eight conjugations and in the numerous exceptions, which, being limited to occurrence with a single morph, require a list and preclude a neat statement. Such irregularities, in a language remembered by only a handful of speakers and little used for years, may be suspected to be nonce-forms and call for checking at widely spaced intervals to determine authenticity. More than a dozen field trips spaced over the years 1953–1959 have been used to provide this kind of control. Even so, the present tentative statement lacks the fullness that might have been expected from investigations had they been carried out thirty years ago. The very high percentage of repetitions of such exceptional forms—some separated by more than six years[2]—suggest that such forms were indeed part of at least one dialect. If anything, disuse may have favored analogical leveling, thus denying us a view of the diversity possessed by the language when it was in daily use.

3.1. Atsugewi consistently distinguishes three persons in the verb morphology. In the first and second persons, singular and plural are distinguished from dual and some verbs have both an inclusive and an exclusive dual in the first person.

3.2. The class of verbs defined in **1** is conveniently divided into eight sub-classes, for which the traditional term 'conjugation' seems appropriate, since each sub-class consists of a number of verbs that occur with the same, or nearly the same, set of affixes. Conjugations are numbered I to VIII; a Roman numeral (or numerals) next to an affix indicates the conjugation (or conjugations) in which it plays the rôle noted, e.g., -wəkswí·we· *first singular past* III. A verb root listed in the morpheme list without a conjugation number is one for which my material contains insufficient forms to permit unambiguous classification; such a root may also have additional allomorphs unrecorded in my corpus. Although there is some overlap between the affixes of the different conjugations, notably in the present habitual and future, each conjugation constitutes a separate system of affixes and root allomorphs and is analyzed as such.

3.3. The affixes of the Atsugewi verb system manifest a relatively complex scheme of mutual implication and dependency. Prefixes, suffixes, infixes and superfixes are utilized singly and in combinations, e.g. s *first singular* (I, II, III, IV, V, VI, VII) occurs as a prefix in both the habitual and actual (and sometimes also in the past), though always implying a suffix which is usually different in the different conjugations; however in VIII -s- occurs as an infix, again indicating first singular, and with no suffix. The usual pattern involves a prefix and one or more suffixes, all of which indicate person, number, tense and mode. Thus s, discussed above, is not only first singular but also non-future, non-present perfect, and, in some conjugations also non-past. From the point of view of communication theory, there is therefore a great deal of redundancy in the Atsugewi verb. Internal reconstruction would indicate that this is very likely due to phonemic changes and other kinds of reshaping that have resulted in a situation not permitting a clear analytical differentiation between what were probably (at some time) a set of person-number affixes, a set of tense markers and a set of mode markers, and perhaps also a set of structural signals (conjugation markers).

3.4. Adding to the degree of redundancy is the alternation of root allomorphs (here called alloroots). Some verbs show but a single root throughout, others manifest as many as six or seven, varying with the tense-mode usually, but sometimes also

[2] In the case of Conjugation VIII, the interval between Curtin's recordings and my own must be well over sixty years, and they do not differ in any essentials.

with the person and number. For example, *sleep* IV has the following seven alloroots in the distributions indicated:

ijm hortative, all future, first and second persons past in singular and plural only
we·j third plural past
we·jw second and third singular present actual
wij third singular past
wijm all present habitual, third plural present actual, first dual past
we·jmo·m third plural past
we·jm first and second plural present actual, elsewhere

Since not all verbs show a plurality of alloroots, it is not possible to analyze these alternations as changes in a process-model of the Atsugewi verb. They add a final touch of bizarre unpredictability to a language already formidably difficult for the non-native speaker to learn to speak. For, once having mastered the affixes of the eight conjugations and having, with luck, determined early the conjugation of the verb in question, it is still impossible to predict how many (if any) alloroots it will have and their distribution.

4.0. The affixes of the Atsugewi verb morphology form eight systems of dependences (in Hjelmslev's terminology)[3] corresponding to the eight conjugations. There is determination (unilateral dependence) between the class of roots of a conjugation and the class of affixes of that conjugation: no affix occurs without a root in the same utterance, but a root may occur without an affix.

4.11. The affixes of a conjugation manifest different kinds of dependences. These dependences are displayed in the sequence limitation diagram for each conjugation. The diagrams show sequence limitations with prefixes at the left, roots in the rectangular box and suffixes at the right. In one case, that of Conjugation VIII, the roots are represented in two rectangular boxes, each containing a part of the root, separated by infixes, with suffixes at the right. Dotted lines passing through a box indicate the obligatory occurrence of the item within the box; if the box represents the class of roots of the conjugation, the obligatory occurrence of the appropriate alloroot is indicated. Dependences are indicated by horizontal lines, including such portions as may be dotted. Items at the right of vertical lines (the edge of a box is not a vertical line) are alternative sequences if their horizontal lines touch the same vertical line. Sequences at the right of + may or may not occur; i.e. the utterance may end at the + or may continue.

4.12. To illustrate the rules of **4.11**: (c.f. the sequence limitation diagram of Conjugation I, **7.1**). The prefix s-, since its horizontal line, after passing through the box, becomes a vertical line with three horizontal appendages, has unilateral dependences with two of the three suffix-complexes indicated: -ija·, -amíje (cf. **5.111**), and -a. That is, s- is dependent on -ija· and -amíje but not vice versa (e.g. if -amíje occurs, then s- must have preceded, but if s- occurs, -amíje does not always follow). Dependence in this (Hjelmslevian) sense is of course quite different from the ordinary meaning of the term in accordance with which we might insist that "of course -amíje is dependent on s-, since -amíje cannot occur without s- preceding it!" If I read Hjelmslev correctly, the definition of dependences is a registration of co-occurrences having nothing to do with causation. Thus -amíje, though s- is a necessary condition for its occurrence, cannot be said to be dependent on s-. Conversely s- is dependent on -amíje, though the latter is only a sufficient, not a necessary, condition of the

[3] Louis Hjelmslev, Prolegomena to a theory of language, Indiana University Publications in Anthropology and Linguistics, Memoir 7, Baltimore, (1953), p. 14 ff.

occurrence of the former; if we consider the direction of articulation of the utterance from beginning to end in time, then -amíje is not ANY condition for the occurrence of s-, since it has not occurred at the time the utterance begins with s-. (Perhaps a better statement than the one immediately preceding this parenthesis is that s- is dependent on -ija· OR -amíje.) It is not dependent on -a in the same way, since if -a occurs, it is not necessarily the case that s- preceded, since -a also occurs after mi_1- (as the diagram shows) and, in addition, after the root without prefix. Thus mi_1- is dependent on -a, but not vice versa. This is a better example of unilateral dependence than that of s-, since s- is dependent upon the occurrence of one of the members of a class and, of the members of that class, two are separately sufficient (but not necessary) conditions for s-, and the third is not even a sufficient condition for s-. However, if we ignore the time dimension of the utterance, the occurrence of some one (and only one) member of the class is a necessary condition for s-.

4.13. Yet another illustration of the rules of **4.11**, again with reference to the sequence limitation diagram of Conjugation I: when the root is not preceded by a prefix (diagrammed as zero followed by a horizontal line to the box, $-e_1$- may be the first suffix to follow the root. If $-e_1$-, follows, then -nye·- is one of four suffixes that may come next. After -nye·-, there may occur -yaw, or -hay or zero. This state of affairs is diagrammed with a + breaking the horizontal line after -nye·-; + is not any sort of phonological juncture; it indicates optional end of verb form. Except for the use of +, verb forms end only with the morphs at the extreme right of horizontal lines on the sequence limitation diagrams.

4.2. The Atsugewi system of verb affixes depends for part of its complexity upon the use of morphs of the same phonemic shape in different positions in the verb. These phonemically identical sequences have different meanings in the different positions in which they occur. Two solutions are theoretically possible: 1. an analysis with a small number of morphs, some of which have a number of different positions of occurrence, correlated with different meanings; 2. an analysis into a larger number of morphs, each with a particular position of occurrence and meaning some of which (morphs) are homophonous. The second solution is adopted here. Homophonous morphs are distinguished by subjoined numerals, e.g. a_1, a_2, etc. It is the one traditionally used in the analysis of inflectional systems, while the first solution is perhaps more often used for non-inflectional morphemic problems. The fact that both alternatives are in use, sometimes in the analysis of the same language, has made difficult the progress of morphemic theory, much of which has consisted in the codification and justification of existing practices. Both solutions seem to present difficulties; the first because a morph with more than one meaning appears an egregious anomaly in the light of the canons of common morphemic practice, the second because homophonous morphs present one of the most vexing problems in the development of a behavioristic morphemics.[4]

4.3. We depart from the second solution only when a phoneme sequence appears in more than one position but has the same meaning in all its positions; such a sequence is analyzed as a single morph if it contains no other such sequence. For example, s-*first person singular* is a prefix in Conjugations I–VII but an infix in VIII; in some conjugations (e.g. I, II and IV) it appears in the past as well as the present habitual and present actual, while in III it does not turn up as part of the past form. It is taken

[4] The problem of homonymity is a difficult one at various levels. Cf. Chomsky's statement "Several crucial problems have been explicitly avoided in this treatment. One is the problem of homonymity . . .", Noam Chomsky, Systems of syntactic analysis, Journal of Symbolic Logic 18.3.243 (1953).

to be a single morph, and the sequence limitation diagrams are regarded as giving complete information concerning its distribution. Of course the facts of its distribution are part of its 'meaning' in any rigorous definition thereof, i.e. it is an important fact about s- that any form containing it is non-future (and in the case of III, also non-past). Therefore the labels attached as 'meanings' to morphs are intended as identifying rather than defining.

4.40. In this section we outline those aspects of the morphophonemics that are predictable when two morphs, of otherwise known phonemic shape, co-occur in a particular order, so long as the prediction is possible in terms of sequences of phonemes as opposed to sequences of morphemes. Those aspects of affix-morphophonemics that are morphemically predictable are displayed in the list of affixes, where the allomorphs and their distributions are given in parentheses after the translation, cf. **6.0**. That is, the allomorphs of a morpheme whose distributions are partially phonemically predictable are listed as a single entry; their combined distribution is only morphemically predictable. Other allomorphs of the same morpheme are listed as separate entries. Each entry may thus be regarded as a macromorph, i.e. that part of a morpheme whose distribution is predictable only morphemically. Each macromorph consists of one or more micromorphs,[5] whose distributions (within that of the macromorph) are phonemically predictable. This terminology appears to have considerable general applicability. For example, the English s-plurals -s ~ -z ~ --z constitute a macromorph, the micromorphs of which are each phonemically predictable; the macromorph's distribution, however, is only morphemically predictable.

4.41. Irrespective of the morphemes involved, the following phenomena are predictable at morph boundaries:

/s/ + /y/ occurs as /š/
/a/ + /a/ occurs as /a/
/a/ + /o/ occurs as /a/
/ə/ + /a/ occurs as /a/
/á/ + /a/ occurs as /á·/
/a/ + /á/ occurs as /á·/
/n/ + /n/ occurs as /n/

4.42. In the lists of affixes (**6.0**) and roots (**9.1**), certain forms are written with a stress. These always have the stress, even when they are combined in a form with more than one stress, a not-unusual situation in Atsugewi. This is true even when the same morph recurs more than once in the same form, e.g. the 3 pl past I, mohjatwa?-wáywapu?máywa *they went*, where -wáywa and -áywa are micromorphs. Certain affixes are always stressed in certain persons and numbers of particular conjugations, but not in others. These facts are indicated by writing the affix with stress in the analytical paragraphs **5.0–5.834**, where appropriate. Morphs which differ only in stress are regarded as the same morph in the list, though the occurrence of stress in these cases is only morphemically predictable, and an exhaustive micromorphic analysis would have to account separately for morphs identical except for stress.

4.43. Transcription is phonemic throughout, except for the subjoined numerals distinguishing homophonous morphs.

5.0. In this section there is presented, one conjugation at a time, the analysis of the person-tense-mode affix system of Atsugewi. The affix morphs themselves are identified again and listed in **6.0**, for convenience in reference.

5.1. Conjugation I follows.

5.11. Present Habitual forms are numbered 5.111–5.116.

5.111. First person singular. Prefix s- *first singular* (cf. **4.12**), root, suffix -a_2- *present actual* (I, IV), suffix -mi_2- *present tense* (I,

[5] Micromorphs belonging to the same macromorph would, I suppose, have to be called allomicromorphs.

II, IV, V, VI), suffix -je$_2$- *singular* (I, II, IV, V, VI).

5.112. Second person singular. Prefix m- *singular* (I, II, IV, V, VI), root, suffix -mi$_2$- *present tense* (I, II, IV, V, VI), suffix -ti- *second person* (I, II, IV, V, VI), suffix -ne?e *second person singular* (I, II, IV, V, VI).

5.113. Third person singular. Root, suffix -a$_1$ *third person singular* (I, II, III, IV, V, VI). In Conjugation I, the third singular present habitual and past forms are phonemically identical, though morphemically different.

5.114. First person plural. Prefix mohja- (~mohsa-) *plural* (I, II, V), prefix -te- *habitual* (I, II, IV, V), prefix -yáw- *plural* (I, II, IV, V), root, suffix -aw- *plural* (I, II, III, IV, VI [same macromorph as prefix -yaw-]), suffix -mi$_2$ *present tense* (I, II, IV).

5.115. Second person plural. Root, suffix -áw- *plural* (I, II, III, IV, V, VI), suffix -mi$_2$ *present tense* (I, II), suffix -te- *habitual* (I, II), suffix -yaw *plural*.

5.116. Third person plural. Prefix mohja *plural* (I, II, III, IV, V, VI). Root, suffix -?- *present habitual* (I, II, III, IV, V, VI), suffix -aywa (~waywa) *third person plural* (I, II, III, IV, V, VI).

5.12. Present actual forms are numbered 5.121–5.127.

5.121. First person singular. Prefix s- *first person singular* (I, II, III, IV, V, VI, VII) root, suffix -a$_2$ *present actual* (I, II, V).

5.122. Second person singular. Root, suffix -e$_1$- *present actual*, suffix -ne?e· *second person singular* (I, IV, VI), or suffix -mehe *second person singular* (I, II, V). The suffix -e$_1$-, appearing in all forms of the present actual except the first person singular, is the characteristic mark of the first conjugation. It appears in no other conjugation, so part of its meaning is *structural signal for Conjugation I*. On the other hand, the person-number suffixes redundantly indicate *present actual* since they are, for the most part, found only in the present actual.

5.123. Third person singular. Root, suffix -e$_1$- *present actual* (cf. 5.122), suffix -nye· *third person singular* (found in this conjugation only).

5.124. First person dual. Root, suffix -e$_1$- *present actual* (cf. 5.122), suffix -nye *first person non-singular*, suffix -hay (-ahay after consonants) *dual* (I, II, III, IV, V, VI, VII). This suffix also occurs in VIII in the meaning *exclusive dual*.

5.125. First person plural. Root, suffix -e$_1$- *present actual* (cf. 5.122), suffix -nye- *first person non-singular*, suffix -yaw (the post-vocalic variety of -aw, cf. 5.114) *plural* (I, II, III, IV, V, VI, VII).

5.126. Second person plural. Prefix mohja- *plural* (I, II, V), root, suffix -e$_1$- *present actual* (cf. 5.122) suffix -wmehe *second person plural*.

5.127. Third person plural. Root, suffix -e$_1$- *present actual* (cf. 5.122), suffix -nyi *third person plural*.

5.13. The characteristic sign of the first conjugation future is the suffix -en- *future* (found in all future forms in I, III, IV, VII). It has the allomorphs n after vowel and -e?n- before /i/. Future forms are numbered 5.131–5.137.

5.131. First person singular. Root, suffix -en- *future* (cf. **5.13**), suffix -ise *first person singular* (I, III, IV, V, VII, found only in future forms).

5.132. Second person singular. Root, suffix -en- *future* (cf. **5.13**), suffix -ne?e *second person singular* (I, II, V, VI, VII).

5.133. Third person singular. Root, suffix -en- *future* (cf. **5.13**), suffix -yehe· *third person singular* (I, II, III, V, VII, found only in future forms).

5.134. First person dual. Root, suffix -en- *future* (cf. **5.13**), suffix -e$_2$- *first person non-singular* (cf. its allomorph -nye, 5.124), suffix -hay *dual* (I, II, III, IV, V, VI, VII).

5.135. First person plural. Root, suffix -en- *future* (cf. **5.13**), suffix -e$_2$- *first person non-singular* (cf. 5.135), suffix -yaw *plural* (I, II, III, IV, V, VI, VII).

5.136. Second person plural. Root, suffix -en- *future* (cf. **5.13**), suffix -je$_1$- (~j?e)

second person non-singular (I, II, III, IV, V, VI, VII), suffix -yaw- *plural* (I, II, III, IV, V, VI, VII), suffix -e_3- *second person non-singular, non-habitual* (I, III, IV, V, VII).

5.137. Third person plural. Root, suffix -en- *future* (cf. **5.13**), suffix -wa?- *third person plural* (has the alternant -twa?- after vowels) (I, II, III, IV, V, VII), suffix -waywa (after V or V?, -aywa elsewhere) *third person plural* (I, II, III, IV, V, VI, VII). These last two redundant suffixes have a peculiar relationship; -wa? always precedes -waywa, but -aywa/ -waywa does not always follow wa?/twa?.

5.14. Past tense forms are numbered 5.141–5.147.

5.141. First person singular. Identical with 5.121, except that suffix -a_3 *past* (I, IV, V, VII) follows the root instead of -a_2 *present actual*.

5.142. Second person singular. Prefix mi_1 *second person* (I, II, III), root, suffix -a_3 *past* (I, II, V, VII).

5.143. Third person singular. Identical with 5.113, except that -a_3 *past* (I, V, VII) follows the root instead of -a_1 *third person singular*.

5.144. First person dual. Root, suffix -hay *dual* (I, II, III, IV, V, VI, VII).

5.145. First person plural. Prefix mohja- *plural*, root, suffix -aw *plural* (I, II, III, IV, V, VI, VII).

5.146. Second person plural. Prefix mohja- *plural* (I, V), prefix -je_1- *second person non-singular* (I, V, VII), root, suffix -aw- *plural* (I, II, III, IV, V, VI, VII), suffix -e_3 *second person, non-singular, non-habitual* (I, IV, VII).

5.147. Third person plural. Prefix mohja- *plural*, prefix twa?- *third plural*, prefix -waywa- *third plural*, root, suffix -aywa (~waywa) *third plural* (I, II, III, V).

5.2. Conjugation II is now given.

5.21. Present habitual forms are numbered 5.211–5.216.

5.211. First person singular. Prefix s- *first person singular* (I, II, III, IV, V, VI), root, suffix -mi_2- *present tense* (II, V, VI), suffix -je_2 *singular* (II, V, VI).

5.212. Second person singular. Identical with 5.112.

5.213. Third person singular. Identical with 5.113.

5.214. First person plural. Prefix mohja- *plural* (I, II, V), prefix -te- *habitual* (I, II, IV, V), suffix -yaw- *plural* (I, II, IV, V), root, suffix -aw (-yaw) *plural*.

5.215. Second person plural. Identical with 5.115.

5.216. Third person plural. Identical with 5.116.

5.22. Present actual forms are numbered 5.221–5.227.

5.221. First person singular. Identical with 5.121.

5.222. Second person singular. Root, suffix -mehe *second person singular* (I, II, V).

5.223. Third person singular. Root, suffix -mi_2 *present tense* (II, III, IV, V, VI, VII), suffix -tehe· *third person* (II, V).

5.224. First person dual. Root, suffix -hay *dual* (I, II, III, IV, V, VI, VII), suffix -mi_2 *present tense* (II, III, VII), suffix -t?e_1 (~the) *first person, non-singular* (II, III, IV, V, VI, VII), suffix -hay *dual* (as above).

5.225. First person plural. Root, suffix -aw- *plural*, (I, II, III, IV, V, VI, VII), suffix -mi_2 *present tense* (II, III, IV, V, VI, VII), suffix -t?e_1(~the) *first person non-singular* (II, III, IV, V, VI, VII), suffix -yaw *plural* (see -aw above).

5.226. Second person plural. Prefix mohja- *plural* (I, II, V), prefix -mi_2- *present tense* (II, V), prefix -je_1- *second person non-singular* (II, III, V), prefix -yaw *plural* (II, V), prefix -e_3- *second person, non-singular, non-habitual* (II, V), root, suffix -e_3- (see above).

5.227. Third person plural. Root, suffix -áw *plural*, suffix -mi_2 *present tense* (II, V, VI, VII), suffix -twa? *third plural* (II, III, IV, V), suffix -waywa *third plural* (II, III, IV, V).

5.23. Future tense forms are numbered 5.231–5.237.

5.231. First person singular. Root, suffix -si- *singular future* (II, VI) (this and the following morpheme are characteristic marks of Conjugation II) suffix -jen- *future*, suffix -sehe· *first person singular* (II, IV).
5.232. Second person singular. Root, suffix -si- *singular future*, suffix -jen- future, suffix -ne?e *second person singular* (I, II, V, VI, VII).
5.233. Third person singular. Root, suffix -si- *singular future*, suffix -jen- *future*, suffix -yehe· *third singular* (I, II, III, V, VII).
5.234. First person dual. This and the first person plural appear to be taken over from IV, since they contain -i- *future* the characteristic marker of the Conjugation IV future, and do not have -jen- *future*, as do all other II-future forms. Root, suffix -en- *future* (I, II, III, IV, VII), suffix -i- *future*, suffix -e_2- *first person non-singular* (I, II, IV), suffix -hay *dual* (I, II, III, IV, V, VI, VII).
5.235. First person plural. The form is identical with 5.234, except for the final morph: the plural has suffix -yaw *plural* (I, II, III, IV, V, VI, VII).
5.236. Second person plural. Root, suffix -jen- *future* suffix -mi_1- *second person* (II, III, V), suffix -je_1- *second person non-singular* (I, II, III, IV, V, VI, VII), suffix -yaw *plural* (I, II, III, IV, V, VI, VII).
5.237. Third person plural. Root, suffix -jen- *future* suffix -wa?- *third person plural* (I, II, III, IV, V, VII), suffix -waywa *third person plural* (I, II, III, IV, V, VI, VII).

5.24. Past tense forms are 5.241–5.247.
5.241. First person singular. Identical with the first singular, present habitual, cf. 5.211.
5.242. Second person singular. Identical with 5.142.
5.243. Third person singular. Root, suffix -mitmé· *third person singular past.*
5.244. First person dual. Identical with 5.224.
5.245. First person plural. Identical with 5.225.
5.246. Second person plural. Prefix mi_1- *second person* (II, III, IV, V), prefix -je_1 *second person non-singular* (I, II, IV, V, VII), root, suffix -aw *plural* (I, II, III, IV, V, VI, VII), suffix -mi_1- *second person* (II, III, IV, V), suffix -je_1- *second person non-singular*, suffix -yaw *plural* (as above).
5.247. Third person plural. Root, suffix -aywa *third person plural* (I, II, III, V).

5.3. Conjugation III forms follow.

5.31. Present habitual forms are numbered 5.311–5.317.
5.311. First person singular. Prefix s- *first person singular* (I, II, III, IV, V, VI), root, suffix -a?ma *present habitual* (III, VI).
5.312. Second person singular. Prefix mi_1- *second person* (III, IV, V, VI), root, suffix -a?ma *present habitual* (III, IV, V, VI).
5.313. Third person singular. Identical with 5.113.
5.314. First person dual. Root, suffix -hay *dual* (I, II, III, IV, V, VI), suffix -a?ma *present habitual* (III, VI).
5.315. First person plural. Root, suffix -aw *plural* (I, II, III, IV, V, VI), suffix -a?ma *present habitual* (III, VI).
5.316. Second person plural. Prefix mi_1- *second person* (III, IV, V, VI), root, suffix -aw *plural* (I, II, III, IV, V, VI), suffix -a?ma *present habitual* (III, IV, V, VI).
5.317. Third person plural. Identical with 5.116.

5.32. Present actual forms are numbered 5.321–5.327.
5.321. First person singular. Prefix s- *first person singular* (I, II, III, IV, V, VI, VII), root, suffix -mi_2 *present tense*, suffix -je_2- *singular*, suffix -he· *actual.*
5.322. Second person singular. Root, suffix -mi_2- *present tense* (III, IV, VI, VII), suffix -je_2 *singular.*
5.323. Third person singular. Root, suffix -mi_2- *present tense* (II, III, IV, V, VI, VII), suffix -t?e_2- *third singular actual* (III, IV, VI, VII).
5.324. First person dual. Identical with 5.224.
5.325. First person plural. Identical with 5.225.

5.326. Second person plural. Prefix je$_1$- *second person non-singular* (II, III, V, VII), root, suffix -aw *plural* (III, VII).

5.327. Third person plural. Root, suffix -en- *future*, suffix -wa?- *third person plural* (II, III, IV, V), suffix -waywa *third person plural* (II, III, IV, V). This form is identical with the future form in this conjugation and appears to have been originally a future form which replaced the present actual form.

5.33. Future tense forms are 5.331–5.337.

5.331. First person singular. Identical with 5.131.

5.332. Second person singular. Root, suffix -en- *future* (I, III, IV, VII), suffix -memi *second person singular* (III, IV).

5.333. Third person singular. Root, suffix -en- *future* (I, III, IV, VII), suffix -yehe· *third person singular* (I, II, III, V, VII).

5.334. First person dual. Root, suffix -en- *future* (I, III, IV, VII), suffix -e$_2$- *first person, non-singular* (I, II, III, IV), suffix -hay *dual* (I, II, III, IV, V, VI, VII).

5.335. First person plural. Identical with 5.334, except for the last morph, which is suffix -aw *plural* (I, II, III, IV, V, VI, VII).

5.336. Second person plural. Prefix mohja- *plural*, root, suffix -en- *future* (I, III, IV, VII), suffix -mi$_1$ *second person* (II, III, V), suffix -je$_1$- *second person non-singular* (I, II, III, IV, V, VI, VII), suffix -yaw *plural* (I, II, III, IV, V, VI, VII).

5.337. Third person plural. Identical with 5.327.

5.34. Past tense forms are 5.341–5.348.

5.341. First person singular. Root, suffix -wəkswí·we· *first singular past.*

5.342. Second person singular. Prefix mi$_1$ *second person* (I, II, III, IV), root.

5.343. Third person singular. Root only.

5.344. First person dual. Identical with 5.224.

5.345. First person plural. Identical with 5.225.

5.346. Second person dual. Prefix mi$_1$- *second person*, root, suffix -e$_3$- *second person, non-singular, non-habitual* (III, VII), suffix -hay *dual* (III, V, VII).

5.347. Second person plural. Prefix mi$_1$- *second person* (II, III, IV, V), root, suffix -aw *plural* (I, II, III, IV, V, VI, VII).

5.348. Third person plural. Root, suffix -aywa *third person plural* (I, II, III, V).

5.4. Conjugation IV follows.

5.41. Present habitual forms include 5.411–5.417.

5.411. First person singular. Identical with 5.111.

5.412. Second person singular. Identical with 5.112.

5.413. Third person singular. Identical with 5.113.

5.414. First person dual. Root, suffix -hay *dual* (I, II, III, IV, V, VI, VII), suffix -mi$_2$- *present tense* (I, II, IV), suffix -te *habitual* (I, II, IV, V), suffix -hay *dual* (as above).

5.415. First person plural. Root, suffix -aw *plural* (I, II, III, IV, V, VI), suffix -mi$_2$ *present tense* (I, II, IV), suffix -te *habitual* (I, II, IV, V), suffix -aw *plural* (as above).

5.416. Second person plural. Identical with 5.115.

5.417. Third person plural. Identical with 5.116.

5.42. Present actual forms are 5.421–5.427.

5.421. First person singular. Identical with 5.111.

5.422. Second person singular. Prefix n- *second person* (IV, VI), root, suffix -a$_2$ *present actual* (this suffix is the characteristic sign of Conjugation IV, playing the same rôle here as does -e$_1$ in Conjugation I), suffix -mi$_2$ *present tense* (III, IV, VI, VII), suffix -ijjə *second person singular* (IV, VI), suffix -ne?e *second person singular* (I, IV, VI).

5.423. Third person singular. Root, suffix -a$_2$ *present actual*, suffix -mi$_2$ *present tense* (II, III, IV, V, VI, VII), suffix -t?e$_2$ *third person singular actual* (III, IV, VI, VII).

5.424. First person dual. Identical with 5.224.

5.425. First person plural. Identical with 5.225.

5.426. Second person plural. Prefix n- *second person* (IV, VI), root, suffix -a_2 *present actual*, suffix -mi_2 *present tense* (IV, VI, VII), suffix -itə *second person plural* (IV, VI), suffix -ne?e *second person singular* (IV, VI). This is the only instance in which -ne?e appears in a plural form. Evidently its meaning is something like *second person, singular unless overridden by* -itə. The second person present actual forms of IV and VI are exactly alike in the singular and plural except for the presence of -ijjə and -itə; cf. 5.422.

5.427. Third person plural. Root, suffix -aywa *third person plural* (II, III, IV, V), suffix -wa? *third person plural* (II, III, IV, V), suffix -aywa *third person plural* (as above).

5.43. Future tense forms include numbers 5.431–5.437.

5.431. First person singular. Root, suffix, -en *future* (I, III, IV, VI, VII), suffix -i *future* (IV, VI), suffix -sehé *first person singular*. The suffix -i- in the future is a characteristic marker of Conjugations IV and VI. Since they both display present actuals in -a_2, they are remarkably similar, differing mainly in the forms of the past (cf. **5.44** and **5.64**).

5.432. Second person singular. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i *future* (IV, VI), suffix -memi *second person singular* (III, IV).

5.433. Third person singular. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i- *future* (IV, VI), suffix -yé· *third person singular*.

5.434. First person dual. Identical with 5.234.

5.435. First person plural. Identical with 5.235.

5.436. Second person plural. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i- *future* (IV, VI), suffix -je_1 *second person non-singular* (I, II, III, IV, V, VI, VII), suffix -e_3- *second person, non-singular, non-habitual* (I, III, IV, V, VII).

5.437. Third person plural. Identical with 5.137, this is the one form of the IV future that does not contain -i- *future*.

5.44. Past tense forms are 5.441–5.447.

5.441. First person singular. Identical with 5.141.

5.442. Second person singular. Identical with 5.342.

5.443. Third person singular. Prefix wí·ə- *third person singular past*, root.

5.444. First person dual. Root, suffix -hay *dual* (I, II, III, IV, V, VI, VII).

5.445. First person plural. Prefix mi_1- *second person* (II, III, IV, V), prefix je_1- *second person non-singular* (I, II, IV, V, VII), root, suffix -aw *plural* (I, II, III, IV, V, VI, VII), suffix -e_3 *second person non-singular, non-habitual* (I, IV, VII).

5.447. Third person plural. Root, suffix -a_3 *past*, suffix -tehe· *third person*.

5.5. Conjugation V follows.

5.51. Present habitual forms (5.511–5.516) of this conjugation coincide with those of either the first or second conjugation.

5.511. First person singular. Identical with 5.211.

5.512. Second person singular. Identical with 5.112.

5.513. Third person singular. Identical with 5.113.

5.514. First person plural. Identical with 5.214.

5.515. Second person plural. Identical with 5.115.

5.516. Third person plural. Identical with 5.116.

5.52. Present actual forms include 5.521–5.527.

5.521. First person singular. Identical with 5.121.

5.522. Second person singular. Root, suffix -q?- *present actual*, suffix -mehe *second person singular* (I, II, V).

5.523. Third person singular. There are two

forms, a short form and a long. The short form is identical with 5.113, while the long form is identical with 5.223.

5.524. First person dual. Identical with 5.224.

5.525. First person plural. Identical with 5.225.

5.526. Second person plural. Identical with 5.226.

5.527. Third person plural. Root, suffix -aywa *third person plural* (II, III, IV, V), suffix -mi$_2$ *present tense* (II, IV, VI, VII), suffix -wa?- third person plural (II, III, IV, V), suffix -waywa *third person plural* (as above).

5.53. The future forms of Conjugation V all contain, immediately after the root, the suffix -min- *future*, a characteristic of V, since it occurs in no other conjugation. In addition, the singular and dual future forms of V have, after mi- and before -n, the infix -hi- *non-plural*. (On the sequence limitation chart for V, these are diagrammed as if they were separate suffixes -mihin- and -min- in order to indicate more clearly the dependences with the suffixes that follow.) The suffix -min- thus has, in the presence of -hi-, the discontinuous morph mi---n. The infix -hi- is also restricted to future forms of this conjugation. The two morphemes thus jointly indicate future and mark the Vth conjugation. In the discussion of the various persons and numbers of the V future to follow, -min- and -mihin- will be listed but not identified further. These forms are numbered 5.531–5.537.

5.531. First person singular. Root, mihin, suffix -isé *first person singular* (I, III, V, VII).

5.532. Second person singular. Root, mihin, suffix -ne?e *second person singular* (I, II, V, VI, VII).

5.534. First person dual. Root, mihin, suffix -e$_2$ *first person, non-singular* (I, II, III, IV, V), suffix -hay 'dual' (I, II, III, IV, V, VI, VII). This form manifests interesting redundancy, since the presence of -hi- indicates that the form is non-plural and -e$_2$ shows that it is non-singular, thus by exclusion it is marked as dual before -hay *dual* is reached. Here, as in many other cases noted above, the Atsugewi left few hostages to fortune in the matter of intelligibility.

5.535. First person plural. Root, min, suffix -e$_2$ *non-singular* (I, II, III, IV, V), suffix -yaw *plural* (I, II, III, IV, V, VI, VII). Incidentally, this is one of the few first person plural formations that cannot (because of min vs. mihin) be transformed into a dual by substitution of -ahay/hay for -aw/yaw wherever the latter occurs in a first person form.

5.536. Second person plural. Root, min, suffix -mi$_1$ *second person* (II, III, V), suffix -je$_1$ *second person non-singular* (I, II, III, IV, V, VI, VII), suffix -yaw *plural* (I, II, III, IV, V, VI, VII), suffix -e$_3$ *second person, non-singular, non-habitual* (I, III, IV, V, VII).

5.537. Third person plural. Root, min, suffix -wa? *third person plural* (I, II, III, IV, V, VII), suffix -waywa *third person plural* (I, II, III, IV, V, VI, VII).

5.54. Past tense forms include 5.541–5.548.

5.541. First person singular. Identical with 5.141.

5.542. Second person singular. Prefix n- *second person*, root, suffix -a$_3$ *past* (I, II, V, VII).

5.543. Third person singular. Identical with 5.143.

5.544. First person dual. All duals and plurals of the past tense of V are indicated on the sequence diagram as containing -a$_3$ *past* just as the singulars do. However, since all the suffixes which immediately follow begin with /a/, it is impossible to segment -a$_3$ in these forms: cf. morphophonemic rule 4.41 which provides that /a/+ /a/ results in /a/. Therefore in the description of the individual duals and plurals, -a$_3$ is not included, since there is no synchronic evidence for it. Root, -ahay *dual* (I, II, III, IV, V, VI, VII).

5.545. Second person dual. Prefix je$_1$ *second person non-singular* (V, VII), root, suffix

-ahay *dual* (V, VII). This conjugation, III and VII are the only ones having a second person dual; VII has it in the future as well as the past.

5.546. First person plural. Root, suffix -aw *plural* (I, II, III, IV, V, VI, VII).

5.547. Second person plural. Prefix mohja- *plural* (I, V), prefix mi_1- *second person* (II, III, IV, V), prefix je_1- *second person non-singular* (I, II, IV, V, VII), prefix -aw *plural*, root, suffix -aw *plural* (I, II, III, IV, V, VI, VII).

5.548. Third person plural. Root, suffix -aywa *third person plural* (I, II, III, V).

5.6. Conjugation VI follows.

5.61. The VI habitual is identical throughout with that of Conjugation III; cf. 5.311–5.317.

5.62. Present actual forms include 5.621–5-627.

5.621. First person singular. Identical with 5.111.

5.622. Second person singular. Identical with 5.422.

5.623. Third person singular. Identical with 5.423.

5.624. First person dual. Identical with 5.224.

5.625. First person plural. Identical with 5.225.

5.626. Second person plural. Identical with 5.426.

5.627. Third person plural. Up to this point the present actual of VI is identical with that of IV. Here, however, VI has what may have been the regular third plural of this variety of present actual; it seems to have been obscured by analogy in IV. Root, suffix $-a_2$ *present actual*, suffix $-mi_2$ *present tense* (II, V, VI, VII). suffix -tehe· *third person* (VI, VII).

5.63. The VI future, like that of IV, is characterized by the suffixes -en- and -i-, both meaning *future*. The two conjugations have different person-number affixes in the future, however, so the future forms are not identical, except for the first person dual and plural. VI future forms are numbered 5.631–5.637.

5.631. First person singular. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i- *future* (IV, VI), suffix -si *singular future* (II, VI).

5.632. Second person singular. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i- *future* (IV, VI), suffix -ʔniʔi (~neʔe) *second person singular* (I, II, V, VI, VII).

5.633. Third person singular. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i- *future* (IV, VI), suffix -ʔixe *third singular (future)*.

5.634. First person dual. Identical with 5.234.

5.635. First person plural. Identical with 5.235.

5.636. Second person plural. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -i- *future* (IV, VI), suffix $-je_1$- *second person non-singular* (I, II, III, IV, V, VI, VII), suffix -aw plural (I, II, III, IV, V, VI, VII).

5.637. Third person plural. Root, suffix -eʔ *future*, suffix -jen- *future* (II, VI), suffix -waʔ *third person* plural (I, II, III, IV, V, VI, VII), suffix -waywa *third person plural* (I, II, III, IV, V, VI, VII).

5.64. The principal difference between Conjugations VI and IV is found in the forms of the past tense. Whereas the IV past is generally simple (composed of root and person-number affixes) that of VI has been completely replaced, mostly by forms of the present perfect. That is, forms which have a present perfect translation in all the other conjugations have both past and present perfect translations when they contain VI roots. These, in my material, occur only in the first and third persons. Consequently, the second person forms with a past translation in VI are identical with the present actual forms, from which tense-mode they have evidently been borrowed. The first and third person forms beginning with kwaqšij- *perfect* are described only once in this paper (as the past tense of VI) but they occur with each of the first seven conjugations as the perfect tense. Therefore the part of the sequence limitation diagram of VI that begins with kwaqšij- could be

drawn on each of the other diagrams I–VII; it has been left out of them in the interests of clarity and simplicity. For the same reason, no parenthetical indication of provenience is provided with the affixes: each occurs in all perfect forms of the indicated person and number. VI past forms are 5.641–5.645.

5.641. First person singular. Prefix kwaqšij- *perfect*, prefix -e·š- *first person singular*, root, suffix -əmí *perfect, singular and third plural*. This last suffix occurs in all perfect forms except the first dual and first plural.

5.642. Third person singular. Prefix kwaqšij- *perfect*, prefix -the$_2$- *third person singular*, root, suffix -əmí *perfect, singular and third plural*.

5.643. First person dual. Prefix kwaqšij- *perfect*, prefix t$^?$e$_1$ *first person, non-singular*, prefix -hay *dual*, root, suffix -hay *dual*.

5.644. First person plural. Prefix kwaqšij- *perfect*, prefix t$^?$e$_1$- *first person, non-singular*, prefix -yaw *plural*, root, suffix -aw *plural*.

5.645. Third person plural. Prefix kwaqšij- *perfect*, prefix -t$^?$e$_3$- *third person plural*, root, suffix -əmí *perfect, singular and third plural*.

5.7. Conjugation VII forms are now given.

5.71. Characteristic of VII is the fact that there is no independent habitual formation, the present actual forms being used for both modes.

5.72. Present actual forms include 5.721–5.727.

5.721. First person singular. Prefix s- *first person singular* (I, II, III, IV, V, VI, VII), root, suffix -əmje *present actual*.

5.722. Second person singular. Root, suffix -mi$_1$- *second person*, suffix -te- *habitual*, suffix -he *actual*.

5.723. Third person singular. Identical with 5.323.

5.724. First person dual. Root, suffix -hay *dual* (I, II, III, IV, V, VI, VII), suffix -mi$_2$- *present tense* (II, III, IV, V, VI, VII), suffix -theha- *first person, non-singular*, suffix -hay *dual* (as above).

5.725. First person plural. Root, suffix -aw *plural* (I, II, III, IV, V, VI, VII), suffix -mi$_2$- *present tense* (II, III, IV, V, VI, VII), suffix -theha- *first person, non-singular*, suffix -yaw *plural* (as above).

5.726. Second person plural. Identical with 5.326.

5.727. Third person plural. Root, suffix -mi$_2$- *present tense* (II, V, VI, VII), suffix -tehe· *third person* (VI, VII).

5.73. Future tense forms are numbered 5.731–5.738.

5.731. First person singular. Root, suffix -en- *future* (I, III, IV, VI, VII), suffix -ise *first person singular* (I, III, V, VII).

5.732. Second person singular. Identical with 5.132.

5.733. Third person singular. Identical with 5.133.

5.734. First person dual. Identical with 5.134.

5.735. First person plural. Identical with 5.135.

5.736. Second person dual. Root, suffix -en- *future* suffix -je$_1$- *second person non-singular*, suffix -hay *dual*.

5.737. Second person plural. Identical with 5.136.

5.738. Third person plural. Identical with 5.137.

5.74. Past tense forms include 5.741–5.748.

5.741. First person singular. Identical with 5.141.

5.742. Second person singular. Prefix ti- *second person singular*, root, suffix -a$_3$ *past* (I, II, V, VII).

5.743. Third person singular. Identical with 5.143.

5.744. First person dual. Root, suffix -a$_3$- *past* (V, VII), suffix -mi$_2$ *present tense*, suffix -theha- *first person non-singular*, suffix -hay *dual* (I, II, III, IV, V, VI, VII).

5.745. First person plural. Identical with 5.744 except that the last morph is replaced by -aw *plural* (I, II, III, IV, V, VI, VII).

5.746. Second person dual. Prefix je$_1$- *second person non-singular* (V, VII), root, suffix -hay *dual* (V, VII), suffix -e$_3$ *second person, non-singular, non-habitual* (III, VII).

5.747. Second person plural. Identical with 5.746 except that -hay is replaced by -aw *plurai* (I, II, III, IV, V, VI, VII).
5.748. Third person plural. Root, suffix -aw *plural*, suffix -a_2 *past* (IV, V, VII).

5.8. Conjugation VIII is set up on the basis of limited but persuasive data. These are thirteen forms from but a single[6] verb tam ... po *to be hungry*. These are the only forms of this verb that could be elicited from my informants, since they filled in the gaps with utterances that translated as *to want to eat* or *to want food*. Although there are no second person forms among the data, the other persons and numbers are represented, as are present, future and past tenses. In addition, some person-number distinctions not represented in other conjugations are to be found here. The data show remarkable regularities; thus they seem more than the products of an elderly informant's confused memory of an obsolescent language. Furthermore, most of these same forms were recorded by Curtin more than sixty years ago, when the language was very much alive. As I have pointed out elsewhere, Curtin's recordings have considerable reliability, and show, with respect to other data, that the dialect he studied was the Hat Creek one and that it has changed very little since the waning decades of the nineteenth century. It is possible that further investigation will reveal other verbs belonging to this conjugation. Even if no others should be uncovered, these data would still be important in that they reveal unprecedented complexity in the language, not to speak of their historical implications.

5.81. Present actual forms include 5.811–5.816.
5.811. First person singular. tam ... (first part of root), infix -a_4- *non-*[*first person exclusive dual future*] (brackets used here in their logical, rather than their phonetic sense, since -a_4- is present in all utterances of this conjugation other than the first exclusive dual future), infix -s- *first person singular*, ... po (second part of root).
5.812. Third person singular. tam ... (first part of root), infix -a_4- (cf. 5.811.), ... po (second part of root), suffix -k?e *third person singular*.
5.813. First person inclusive dual. tam ..., infix a_4 (cf. 5.811.), infix -ma- *inclusive dual*, ... po.
5.814. First person exclusive dual. tam ..., infix -a_4- (cf. 5.811.) ... po, suffix -hay *exclusive dual*.
5.815. First person inclusive plural. tam ..., infix -a_4- (cf. 5.811.) ... po, suffix -yaw *inclusive plural*.
5.816. First person exclusive plural. tam ..., infix -a_4- (cf. 5.811.), ... po, suffix -hyaw *exclusive plural*.

5.82. Future tense forms are numbered 5.821–5.823.
5.821. First person inclusive dual. Identical with 5.813, except that there is added the suffix -neni *future*.
5.822. First person exclusive dual. The simple root, with no affixes: tampo.
5.823. First person exclusive plural. Identical with 5.816, except that there is added the suffix -neni *future*.

5.83. Past tense forms include 5.831–5.834.
5.831. Third person singular. tam ..., infix -a_4- (cf. 5.811), ... po, suffix -nina *past*.
5.832. First person inclusive dual. Identical with 5.813, except for the addition of suffix -nina *past*.
5.833. First person exclusive dual. Identical with 5.814, except for the addition of suffix -nina *past*.
5.834. First person exclusive plural. Identical with 5.816, except for the addition of suffix -nina *past*.

6.0. In this section are listed all affixes, together with the complete distribution of each. In the absence of any Atsugewi dic-

[6] Another verb, aji..po *to be thirsty*, which came to light only as this paper was in the final stage of preparation, may also be VIII. If so, the identity of the second part of the roots of the two verbs has interesting historical implications. Another paper in this series, on the history of the affixes and conjugations, will explore this area, if forms of this verb can be elicited.

tionary, the morphs are listed alphabetically for the convenience of comparativists. All morphs having exactly the same translation belong to the same morpheme, since they are never in contrast (the translations having been selected to identify contrastive and non-contrastive distributions). Though it is not crucial to the analysis, no morph is regarded as a portmanteau. This decision results from the belief that morphemic analysis is possible, in practice as well as in theory, if only we know that the meanings of two morphs are either the same or different. If the meanings are different, it does not matter if they overlap somewhat. The notion of the portmanteau morph rests on the assumption that a recurrent partial of 'meaning' must always be assigned to the same morpheme no matter where it occurs, and, if this results in impossible segmentation, then a portmanteau morph can be set up which belongs simultaneously to two morphemes. Such a view is incompatible with the assumption, made here, that morphemes are not units of meaning, but parts of utterances or, better, classes of parts of utterances. Meanings are an aid in analysis and a means of identification of morphs and morphemes, not an object of morphemic analysis and thus cannot be assigned to morphemes. In this listing, morphs which do not have exactly the same translation are not members of the same morpheme.

a_1 *third person singular.* Suffix. 3 sg pres hab I II III IV V VI, 3 sg pres act V.

a_2 *present actual.* Suffix. 1 sg pres act I II IV V VI, 2 sg pres act IV VI, 3 sg pres act IV VI, 2 pl pres act IV VI, 3 pl pres act VI, 1 sg pres hab I IV.

a_3 *past.* Suffix. 1 sg past I IV V VII, 2 sg past I II V VII, 3 sg past I V VII, 1 pl past VII, 1 du past VII, 2 du past V VII, 2 pl past VII, 3 pl past IV VII.

a_4 *non-[first person exclusive dual future]* (cf. 5.811) Infix. All forms of VIII, except 1 excl du fut.

aw *plural* (yaw after vowel, aw elsewhere) Prefix. 1 pl pres hab I II V, 2 pl pres act II V, 2 pl past V, 1 pl perf I II III IV V VI VII. Suffix. 1 pl pres hab I II III IV V VI, 1 pl pres act I II III IV V VI VII, 1 pl past I II III IV V VI VII, 1 pl fut I II III IV V VI VII, 1 pl perf I II III IV V VI VII, 2 pl pres hab I II III IV V VI, 2 pl past I II III IV V VI VII, 2 pl fut I II III IV V VI VII, 3 pl pres act II, 3 pl past VII, 2 pl pres act III.

áywa *third plural* (wáywa after vowel or vowel +ʔ, áywa elsewhere). Prefix. 3 pl past I. Suffix. 3 pl pres hab I II III IV V VI, 3 pl fut I II III IV V VI VII, 3 pl pres act II III IV V, 3 pl past I II III V.

aʔma *present habitual* (ʔaʔma after vowel, aʔma elsewhere). Suffix. 1 sg pres hab III VI, 2 sg pres hab III IV V VI, 1 pl pres hab III VI, 1 du pres hab III VI, 2 pl pres hab III IV V VI.

e_1 *present actual.* Suffix. All forms of pres act I, except 1 sg.

e_2 Cf. nye.

e_3 *second person, non-singular, non-habitual.* Prefix. 2 pl pres act II V. Suffix. 2 pl fut I III IV V VII, 2 pl past I IV VII, 2 du past III VII.

en *future* -n after vowel; otherwise eʔn before /i/, elsewhere en). Suffix. 1 du fut II, 1 pl fut II, all forms fut I III IV VI VII.

eˑš *first singular perfect.* Prefix. 1 sg perf I II III IV V VI VII.

eʔ *future.* Suffix. 3 pl fut VI.

eʔn Cf. en.

hay *dual* (in VIII *exclusive dual*) (-ahay after consonant, -hay elsewhere). Suffix. All dual forms in pres hab, pres act, fut, past, perf I II III IV V VI VII, 1 excl du pres act VIII, 1 excl du past VIII.

heˑ *actual* (free alternation with -he). Suffix. 1 sg pres act III, 2 sg pres act-hab VII.

hi *non-plural future.* Infix. All sg and du forms V.

hyaw *exclusive plural.* Suffix. 1 excl pl pres act VIII, 1 excl pl fut VIII, 1 excl pl past VIII.

i *future, IV-marker, VI-marker.* Suffix. 1 sg fut IV VI, 2 sg fut IV VI, 3 sg fut IV

VI, 1 pl fut II IV VI, 2 pl fut VI, 1 du fut II IV VI.

ijjə *singular*. Suffix. 2 sg pres act IV VI.

ise *first person singular* (isi· after /i/, ise elsewhere). Suffix. 1 sg fut I III V VI VII.

isi· Cf. ise.

itə *plural*. Suffix. 2 pl pres act IV VI.

jé$_1$ *second person non-singular*. (jw- initially, -j- after /i/ before /i/, elsewhere jé and j?é in free alternation). Prefix. 2 pl past I II IV V VII, 2 du past V VII, 2 pl pres act II III V. Suffix. 2 pl fut I II III IV V VI VII, 2 du fut VII, 2 pl past II.

je$_2$ *singular*. Suffix. 1 sg pres hab I II IV V VI, 1 sg pres act III IV, 2 sg pres act III, 1 sg past II.

jen *future*. Suffix. 1 sg fut II, 2 sg fut II, 3 sg fut II, 2 pl fut II, 3 pl fut II VI.

jw- Cf. je$_1$.

j?e Cf. je$_1$.

kwaqšij *perfect tense* (free alternation with kwaqji-). Prefix. All forms of the perfect I II III IV V VI VII.

k?e *third singular present actual*. Suffix. 3 sg pres act VIII.

m *singular*. Prefix. 2 sg pres hab I II IV V VI.

ma *inclusive dual*. Infix. 1 incl du pres act VIII, 1 incl du fut VIII, 1 incl du past VIII.

mehe *second person singular*. Suffix. 2 sg pres act I II V.

memi *second person singular*. Suffix, 2 sg fut III IV.

mi$_1$ *second person* (m before /y/, mi?m before /p/, mi elsewhere). Prefix. 2 sg pres hab III IV V VI, 2 pl pres hab III IV V VI, 2 pl past II III IV V, 2 sg past I II III, 2 du past III, 2 sg pres act-hab VII. Suffix, 2 sg pres hab I II IV V VI, 2 pl pres hab I II IV V VI, 2 pl fut II III V.

mi$_2$ *present tense*. Prefix. 2 pl pres act II V. Suffix. 1 sg pres hab I II IV V VI, 1 sg pres act III, 1 sg past II, 1 du pres hab I II IV, 1 du pres act II III IV V VI VII, 1 du past VII, 1 pl pres hab I II IV, 1 pl pres act II III IV V VI VII, 1 pl past VII, 2 sg pres hab I II IV V VI, 2 sg pres act III IV VI VII, 2 pl pres hab I II, 2 pl pres act IV VI VII, 3 sg pres act II III IV V VI VII, 3 pl pres act II V VI VII.

min *future*. Suffix. All future forms, V.

mitmé. *third singular past*. Suffix. 3 sg past II.

mohja *plural* (free alternation with mohsa) Prefix. 1 pl pres hab I II V, 1 pl past I, 2 pl pres act I II V, 2 pl past I V, 2 pl fut III, 3 pl past II.

n- *second person*. Prefix. 2 sg pres act IV VI, 2 sg past V, 2 pl pres act IV VI.

neni *future*. Suffix. All future forms VIII.

ne?e *second person singular* (?ni?i after /i/, ne?e elsewhere). Suffix. 2 sg pres hab I II IV V VI, 2 sg pres act I IV VI, 2 sg fut I II V VI VII, 2 pl pres act IV VI.

nina *past*. Suffix. All past forms VIII.

nye *first person, non-singular* (nye after /e/, ?e after any other vowel, e$_2$ elsewhere). Suffix. 1 du pres act I, 1 du fut I II III IV V, 1 pl pres act I, 1 pl fut I II III IV V.

nye· *third person singular* (yé· after /i/, nye· elsewhere). Suffix. 3 sg pres act I, 3 sg fut IV.

nyi *third person plural*. Suffix. 3 pl pres act I.

q? *present actual*. Suffix. 2 sg pres act V.

s- *first person singular*. Prefix. 1 sg pres hab I II III IV V VI, 1 sg pres act I II III IV V VI VII, 1 sg past I II IV V VI VII. Infix. 1 sg pres act VIII.

sehe· *first person singular*. Suffix. 1 sg fut II IV.

si *singular future*. Suffix. 1 sg fut II VI, 2 sg fut II, 3 sg fut II.

te *habitual*. Prefix. 1 du pres hab I II V, 1 pl pres hab I II V. Suffix. 1 du pres hab IV, 1 pl pres hab IV, 2 pl pres hab I II, 2 sg pres act-hab VII.

tehe· *third person*. Suffix. 3 sg pres act II V, 3 pl pres act VI VII, 3 pl past IV.

thé$_1$ Cf. t?e$_1$.

the$_2$ *third singular perfect*. Prefix. All perf forms I II III IV V VI VII.

théha *first person non-singular*. Suffix. 1 du pres- hab VII, 1 pl pres-hab VII, 1 du past VII, 1 pl past VII.

ti *second person singular*. Prefix. 2 sg

past VII. Suffix. 2 sg pres hab I II IV V VI.

twa? Cf. wa?.

t?é$_1$ *first person, non-singular* (free alternation with -the$_1$-). Prefix. 1 du perf I II III IV V VI VII, 1 pl perf I II III IV V VI VII. Suffix. 1 du pres act II III IV V VI VII, 1 pl pres act II III IV V VI VII, 1 du past II III VI VII, 1 pl past II III VI VII.

t?e$_2$ *third singular actual.* Suffix. 3 sg pres act III IV VI VII.

t?e$_3$ *third plural perfect.* Prefix. 3 pl perf I II III IV V VI VII.

wáywa Cf. aywa.

wa? *third plural* (twa? after vowel, wa? elsewhere). Prefix. 3 pl past I. Suffix. 3 pl pres act II III IV V, 3 pl fut I II III IV V VI VII.

yé· Cf. nye.

yehe· *third person singular.* Suffix. 3 sg fut I II III V VII.

? *present habitual.* Suffix. 3 pl pres hab I II III IV V VI.

?a?ma Cf. a?ma.

?e Cf. nye.

?ixe *third singular.* Suffix. 3 sg fut VI.

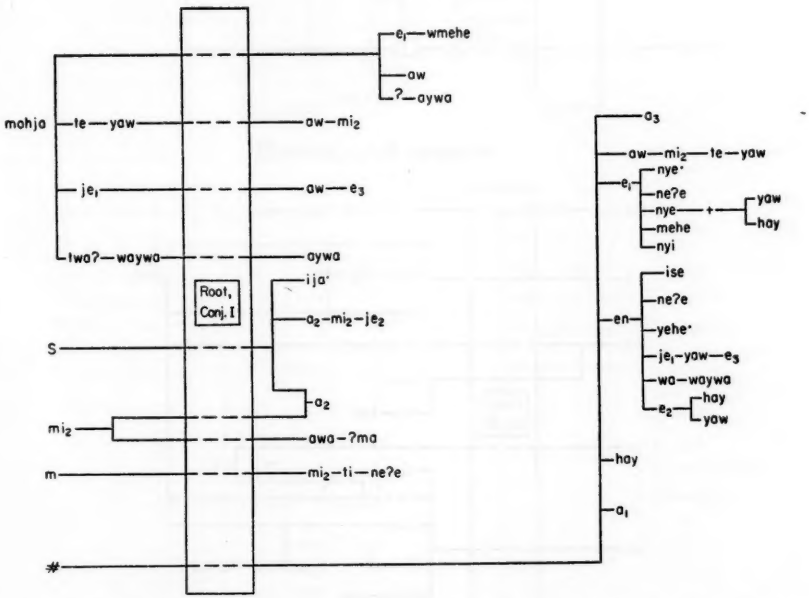
?ni?i Cf. ne?e.

əmí *singular, third plural perfect.* 1 sg perf I II III IV V VI VII, 3 sg perf I II III IV V VI VII, 3 pl perf I II III IV V VI VII.

əmje *present actual.* Suffix. 1 sg pres act VII.

7. Sequence limitation charts follow.[7a]

Atsugewi Conjugation I



wí·e *third singular past.* Prefix. 3 sg past IV.

wmehe *second person plural.* Suffix. 2 pl pres act I.

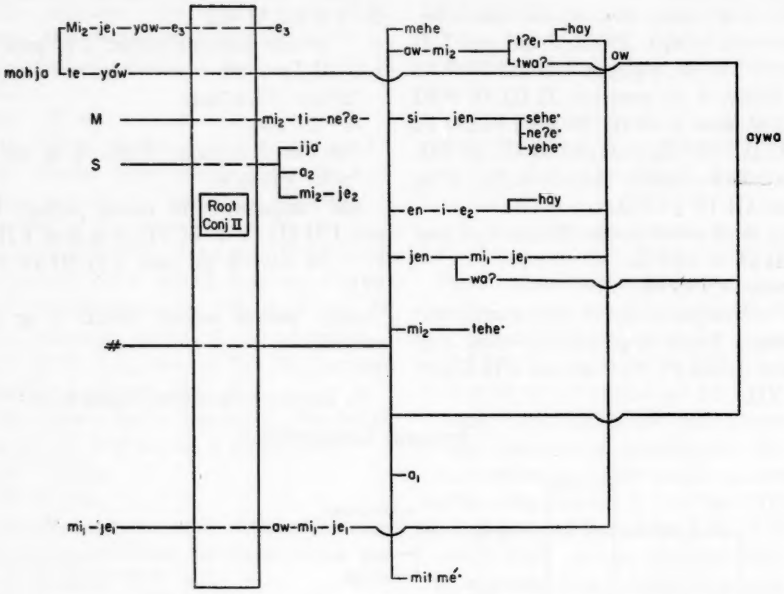
wəkswi·we· *first singular past.* Suffix. 1 sg past III.

yaw Cf. aw.

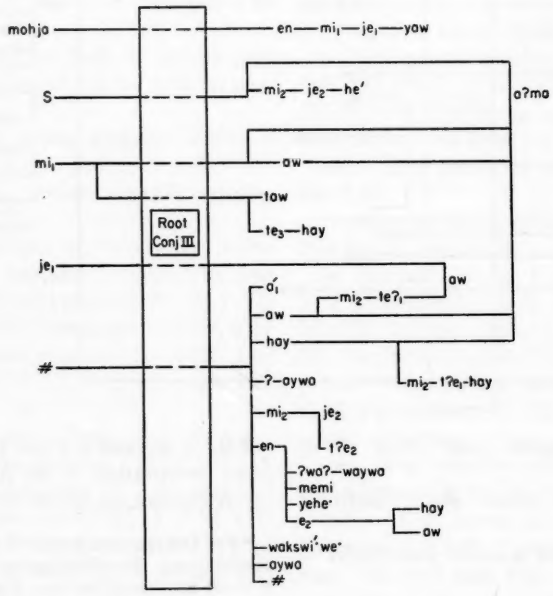
8.0. In sections **5, 6** and **7** there is a complete presentation of the Atsugewi system of verb affixes, as far as the present corpus

[7a] For Conjugation I: on left side of chart mi$_2$ should be mi$_1$. For Conjugation IV: on left side of chart wi-ə should be wí·ə. For Conjugation V: on left side of chart jei should be je$_1$.

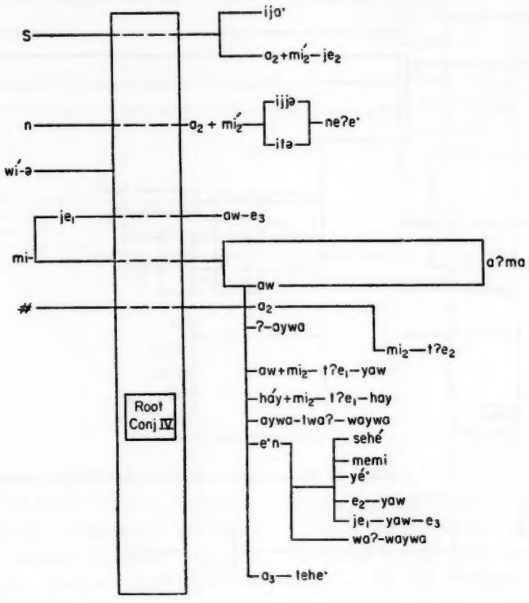
Atsugewi Conjugation II



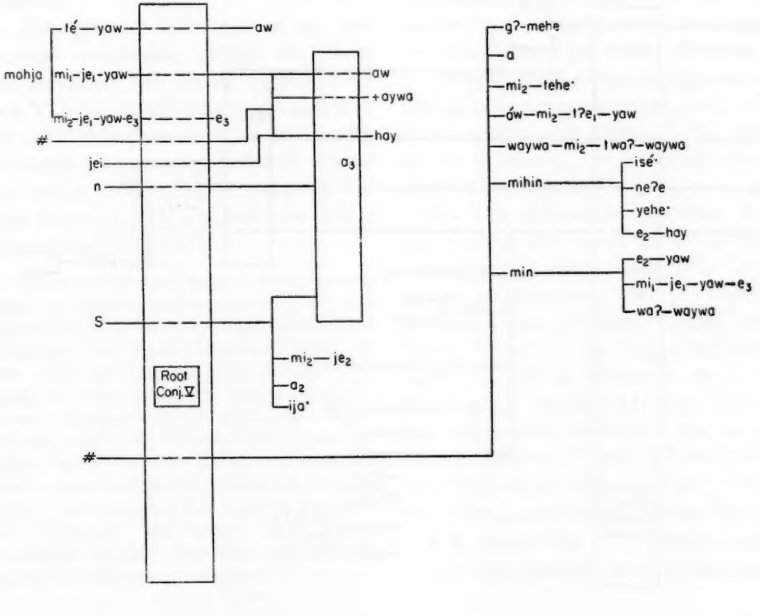
Atsugewi Conjugation III



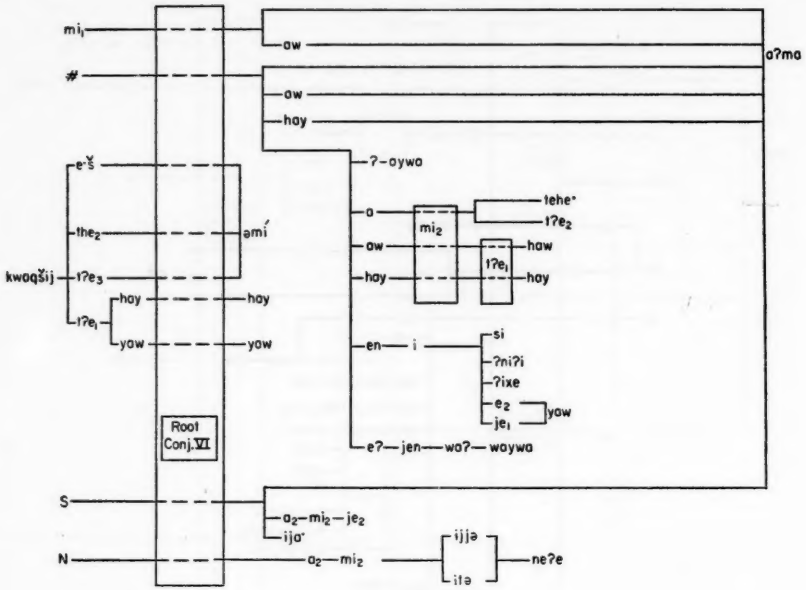
Atsugewi Conjugation IV



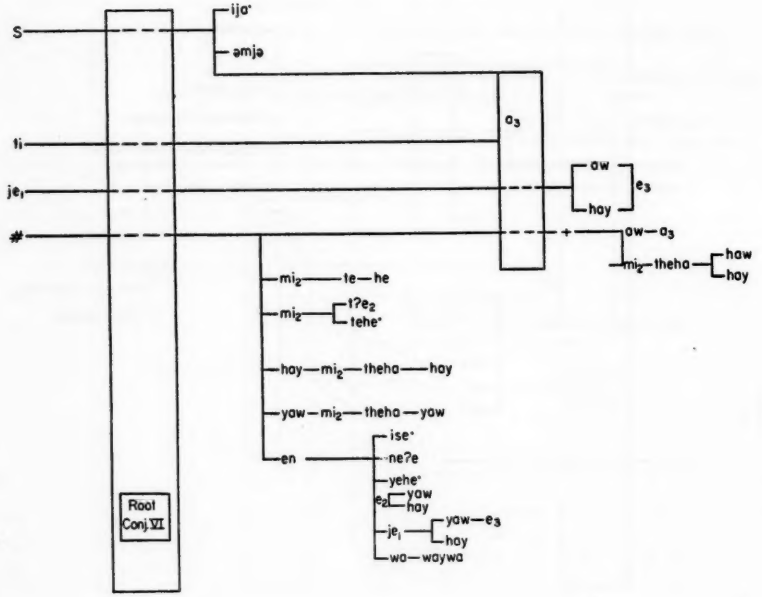
Atsugewi Conjugation V



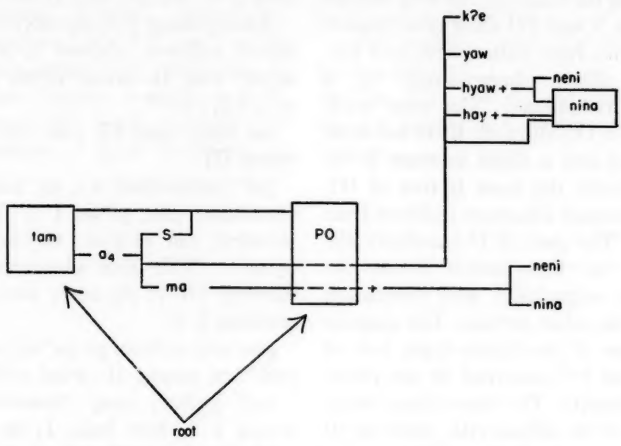
Atsugewi Conjugation VI



Atsugewi Conjugation VII



Atsugewi Conjugation VIII



displays that system. Together with the list of verb roots to be given below, it constitutes an exhaustive treatment of verb inflection in this corpus. In order that the regularities of the system shall not be obscured by the admittedly many IRREGULAR details,[7b] we insert here a sketch of the affix system.

8.1. The present habitual, of all the tense-mode complexes, shows the least regular variation. The system displayed by III and VI is quite self-consistent, and it is broken in the other conjugations principally by divergent forms in the first and second person forms. There is no evidence for habitual forms in VIII and the habitual is the same as the actual in VII.

[7b] A measure of the complexity of Atsugewi verb inflection may be obtained by a comparison with its relative Karok. Bright's thorough treatment of the language (The Karok language, UCPL 13, Berkeley and Los Angeles, 1957) devotes only ten pages to verb inflection, even though the Karok verb incorporates the object (as well as the subject) while the Atsugewi verb does not. One might characterize the Karok verb inflection as possibly more complex (i.e. inflected for more categories), more regular (i.e. requiring no subclasses of the sort here termed conjugations), less redundant (usually requiring one and only one morph per form per category).

8.2. There are fairly regular differences among conjugations in the present-actual. I has a present actual in -e-, while IV and VI show forms with -a- between root and suffixes. II, III, V and VII lack an intervening vowel, the suffixes following the root directly. The infix-system of VIII makes it quite different, though it has -s- *first person singular* in common with the others. In addition, I has a somewhat divergent series of person-number affixes, themselves limited largely to the present actual, and, unlike all other conjugations except VIII, makes no use at all of mi_2, the well-nigh ubiquitous mark of the present.

8.3. The differences between the conjugations in the future forms display considerable regularity. Aside from VIII, the future constructions may be classified as futures in -en- or futures without -en-. The latter, II and V, have -jen- and -min- respectively. Of the futures in -en-, I, III and VII have a simple en-future, with only a few differences between them in person-number affixes. IV and VI add -i- to the -en-, but are not alike in their person-number affixes, particularly in the singular.

8.4. Aside from VIII, which makes past forms from present ones by the easy addi-

tion of a suffix, there is considerable diversity among the conjugations with respect to past forms. V and VII show quite regular past forms with root, past morph, and person-number affixes characterized by a minimum of redundancy. The same tendency is seen in IV, although there are some unique affixes and a slight increase in redundancy. About the same is true of III, though the unusual affixes are different from those of IV. The past of II manifests disorder, with the first person forms like presents and redundancy and uniqueness rampant in the other persons. The singular forms of I are of the simple type, but no stone has been left unturned in the plural to express plurality. The three plural forms have a total of ten affixes with *plural* as all or part of their translations. The past of VI, discussed in **5.64**, is quite divergent, being for the most part identical with the perfect.

9.0. In the following list of Atsugewi roots, a Roman numeral indicates the conjugation. A question mark following the numeral identifies the verb as probably of the conjugation indicated, but as one for which the corpus contains incomplete data. More than one Roman numeral placed after the root indicate that the data are insufficient for an unambiguous classification but enough to narrow the possibilities to the ones named. The absence of a numeral shows that the data are so scanty that the conjugation cannot be identified; it probably also means that the root listed may be only one of several alloroots. The subject of alloroots—their numbers, phonemic interrelationships, and distributions—will be dealt with in a future paper in this series on Atsugewi. The verbs are listed alphabetically by English translation for the convenience of Hokanists.

9.1. List of roots follows.

bite pij; *blow* wiss I, V; *breathe* ussəts I, V; *burn* pwewkat I ?.

chop mokát, yokət, yohkət, yo?kət II; *cold, be* eskap, weskap, ye·skap; *come* wiw, wi, iw, iwi IV; *count* kəra·m; *crawl* jaqaky, joqa?k V; *cry* ist, wist I; *cut* yə?at.

dance yohpay III; *dig* ehxy; *discard* (*large object*) wokwor, yokwor I; *discard* (*small object*) wasj II; *dream* pí·jak IV; *drink* ij, wi·j, i·ji, i·jy V.

eat yam, wam VI; *enter* pu·snú, wusnu·, yusnu III.

fall (*intransitive*) u·t, ut, mut, II, V; *fall* (*transitive*) pim, pí?im I ?; *fear* ísm; *fight* wo·wí·w; *fish* wleyme·, weymo·, weymo·m, leymo·m VII; *float* kjusparás I, V; *flow* juwo·mí III ?; *fly* istu·, wistu· III; *freeze* qíwinuss I, V.

give saw, se?ray; *go* pu?m, pu?um I; *grab* pwá?was, pawus II; *grind* ra?kíw V.

hail jephut; *hang* (*transitive*) yaruker, aruker I ?; *hear* kuka I; *hit* (*with hand*) wáthpára; *hit* (*with fist*) túpəq; *hold* wásw, wawasw I V; *hungry, be* tam...po VIII; *hunt* maxjiw, maxs III; *hunt* (*at night*) meskiju?m VII; *hurry* se?parə, sə?par IV.

jump pistu·wáy, pistaway III; *jump across* wijtaway III.

kick pák; *kill* pwəhn III; *know* (*facts*) pé·matikas, pé·məjiks I; *laugh* urussit, russit III; *learn* tematéə, tematéəh I ?.

lie (*tell lies*) kayaw, kay I ?; *lie* (*down*) witáq I, V; *listen* qesk, qeskej, kwaqe·s VI; *live* yá·sw, yá·su I, V; *look* wimáhew, wimahw, wimwésw VI cf. *see*; *lose* wat, wa·tiw I, II, V.

make fire pwahya·, pwáhy VII.

play kwé·yu?, kwe·yú?m I, V; *pull* lúllasw; *push* jiqwatəw; *put* hisam, jhjisw.

rattle kolokolohóys (cf. Russian kolokol *bell*); *rub* tú·suy I, V; *run* ru?kij, rukij, urukij III; *run* jiwy VII; *run away* ohuwij, wohuwij? V; *run home* purukij (special form of ru?kij ?) III ?.

say, iss, wiss I; *saw* (*wood*) rəkət; *scratch* twojoq I, V; *see* pí·ma, wim, wi·m VI (cf. *look*); *sell* wiwasw VII; *sew* raqp, araxp VII; *shoot* ijti, wijtu, itú· V; *shout* potsow; *sing* ie·j, wie·j VII; *sink* tin, stin; *sit* ju?kup, ju?kupe III; *sleep* wijm, ijm, wijw, we·jw, we·jm, we·jmo·m IV; *sling* ya?puw; *spit*

wostaw, staw; *split* oriat, woriaj, yoriat VII; *squeeze* tu?nak I, V; *stab* inn I; *stand* aqá·s, wahqu·sw, wahqes, wahqa·swa, wahqits II; *steal* wa·tstik VII; *suck* wí?jík III ?; *swell* pokuwítsw I, V; *swim* apsjaw, wapsjaw, wapsja, apsjo·, wapjaw, puxj V.

take into snəw III; *teach* twematé· VII (orig. a causative of *learn* ?); *thirsty, be* aji...po VIII ?; *throw* yappaw; *tie* runar I, V; *tired, be* wirəwa·y, wirəw; *toss* yoškotəw; *turn* (*veer*) miti? I.

vomit woyóhq; *walk* i?w VI; *warm, be* pwew, pwewya I, II, V cf. *burn*; *wash* jwi?tór VII; *whistle* sayoyowis cf. *say*; *whisper* hawhawis cf. *say*; *wipe* jinnuj; *work* kurum.

SENECA MORPHOLOGY VI: OTHER PREFIXES*

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21. The primary prefixes
22. The duplicative
23. The negative
24. The translocative
25. The secondary prefixes

21.1. The entire verb structure which has been described up to this point will be called the MINIMAL VERB.[1] The minimal verb may be expanded by the occurrence of several classes of prefixes.[2] There are five of these classes altogether, two of which, the primary and secondary prefixes, contain several morphemes each, while the other three, the duplicative, negative, and translocative prefixes, are each single morphemes.

21.2. First to be discussed will be the PRIMARY prefixes, which simply precede the total minimal verb if it is nonmodal.

Verb	
Primary Prefix	Minimal Verb

When a modal prefix is present (**8**), the primary prefix sometimes precedes, sometimes follows, and sometimes is infixed within the modal morpheme. There are two primary prefix morphemes, the CISLOCATIVE and the REPETITIVE.[3]

21.3. The cislocative morpheme (t-/ti-) differs somewhat in meaning according to whether the meaning of what follows involves or does not involve a change of location. If a change of location is involved, the cislocative indicates that it takes place in a direction toward the speaker or some other reference point: t- in tyeyɛtinyʌ́ʔtha? *she's bringing in wood*, tyoti:yɔ:h *they (non-masc. nonsg.) have come in.* If a change of location is not involved, the cislocative indicates that the meaning is temporarily pinpointed in space or time: tyeta:tyeʔs *she's standing there*, theya:wi:h *I've given it to him for a moment, handed it to him* (cf. heya:wi:h *I've given it to him to keep*). It often occurs in place names: tkanɔtæ:kwɛh *where the chosen town is, Canandaigua, N. Y.*

21.4. The repetitive morpheme (s-/ji-/t-/[j]-) indicates that the meaning of what follows represents one particular occurrence or repetition of a phenomenon that involves several occurrences. It is usually translated *again, back, other, one*, or (with the negative prefix described in **23**) *no longer*: s- in shata:khe? *he's running again*, swa:tih *it's on the other side*, swɛ:nʌshæ:t *one day*. It often occurs in personal names: shonʌ́ʔkais *he is one who has a long horn, the long-horned one.*

21.5. After a primary prefix the shape of the pronominal prefix is the same as that which occurs after the optative or future morpheme (**8.7, 9.11, 10.10, 10.15, 11.15**), except that word-initial h remains, initial ʔ or y is absent with the overlapping repetitive allomorph [j]- (see below), and s occurs in place of initial sh (see also **3.7**).

21.6. The cislocative allomorphs occur as follows: ti- occurs before the inclusive person morpheme and before the second person if the latter is directly followed by the objective, dual, or plural: tityáhsawɛh *let's (incl. du.) begin (at this point)!*, tiswanɔke? *you (pl.) live there*; t- occurs elsewhere: see examples in **21.3** and tsiʔtyɔʔ

* Seneca Morphology I, II, III, IV, V, IJAL 26. 11-22, 123-29, 224-33, 283-89; 27.42-45.

[1] This is an arbitrary term, used here simply for its convenience in statements which follow in this chapter. It should not be confused with the more general concept of irreducibility (**2.15, 5.1**).

[2] Together with the modal prefixes they correspond to Lounsbury's PREPRONOMINAL prefixes in Oneida.

[3] The latter is cognate with Lounsbury's ITERATIVE morpheme.

where you are settled, tska:wi:h *you've handed it to me.*

21.7. The repetitive allomorphs occur as follows: ji- occurs in the same environments as cislocative ti: jitwáhtɛ:tih *let's (incl. pl.) travel back!,* jisa:kɔh *you've eaten it again*; t- occurs before any other morpheme beginning with s: tsi?tyɔ? *you are settled again* (homonymous with the cislocative; see above), tsɔkwa:wi:h *he has given it back to us (pl.)*; [j]- occurs before and overlaps a morpheme with word-initial ? or y, the ? or y being absent: jakwé?tyɔ? (initial ?a-) *we (excl. pl.) are settled again,* jeyá?ta:t (initial ye-) *she's the other woman*; s- occurs elsewhere: see examples in **21.4** and skakéhtæ:t *one layer.*

21.8. A primary prefix may begin with initial ?i, under the conditions described in **6.11**: ?itye:t *she's standing there.*

21.9. With the indicative morpheme the cislocative and repetitive allomorphs are t- and s- respectively. They precede the indicative, which occurs in the following allomorphs: -e- occurs before the inclusive person morpheme and before the second person if the latter is directly followed by the objective, dual, or plural: teswatye:ɛt *you (pl.) initiated it (at a particular point),* setwaiwásyɔ:ni? *we (incl. pl.) fixed the matter up again, made restitution*; -O- occurs before the objective morpheme (-ɔ-; **10.10**): sɔkáshæ:?t *it occurred to me again, I remembered it*; -a- occurs elsewhere: tasa:tih *throw it here!,*[4] sa:onya:k *he married again.*

21.10. With the optative morpheme the cislocative and repetitive allomorphs are also -t- and -s-, but they are infixed within the optative, which occurs in the allomorphs ?ɔɔ-e-/?ɔɔ-/?ɔɔ-a-, conditioned in analogous fashion to the indicative allomorphs described in **21.9**: ?ɔ:setwátkɔ:tak *we (incl. pl.) ought to go there again,* ?ɔ:sɔkyɛt *it might hit me again,* ?ɔ:tashakaɔ? *he ought to hand it to her.*

[4] It is only in the presence of a primary or secondary prefix that the indicative and imperative morphemes occur together in the same word (cf. **8.3**).

21.11. The future morpheme, ?ɛ-, precedes the cislocative and repetitive, which occur in the allomorphs described in **21.6, 7**: ?ɛthénɔ?swa:tɔ? *they (masc. pl.) will erect a dam there,* ?ɛtítwathwatase? *we (incl. pl.) will circle around it there,* ?ɛsho:nya:k *he'll marry again,* ?ɛjitwáiwasyɔ:ni? *we (incl. pl.) will make restitution.*

22.1. The DUPLICATIVE[5] prefix is a single morpheme (te-/t-/-ti-), which precedes[6] the minimal verb either directly or with an intervening primary prefix:

Verb	
Duplicative Prefix	Minimal Verb with or without Primary Prefix

The duplicative morpheme indicates that more than a single person, thing, action, or state is involved in the meaning of the verb: te- in teyákwatha:ha? *we (excl. pl.) talk together,* te:aya?s *he's breaking it in pieces* (cf. ha:ya?s *he's breaking it*), teyɔkwatawɛnye:h *we (pl.) are moving about,* tekatenye?s *it changes,* tejitwatas *let's (incl. pl.) stand it back up!.* In some words it indicates that precisely two entities are involved: teyóhsohkwa:ke:h *two colors,* teyóni:eyɔ:h *they two (nonmasc. nonsg.) are dead,* teyotɔɛjo?ktáhkɔh *both ends of the earth.* It is used in the enumeration of two entities: tekhni: (*two*) téano?jo:t *he has two teeth.* In the presence of the cislocative morpheme the duplicative usually has a meaning similar to that of the repetitive (which is mutually exclusive with the cislocative): tethóktɔ:h *he has come back here.*

22.2. After the duplicative morpheme the shape of the pronominal prefix is the same as that which occurs after the optative or future morpheme (cf. **21.5**). When it directly precedes either a pronominal or primary prefix, the shape of the duplicative morpheme is te-: see examples in **22.1**.

22.3. When it occurs alone with the

[5] Cognate with Lounsbury's DUALIC.

[6] In one environment (**22.3**) it follows the modal prefix.

indicative morpheme, the duplicative morpheme comes second. The indicative allomorph in such a case is ʔoʔ-, and the duplicative allomorphs are as follows: -ti-[7] occurs before the inclusive person morpheme and before the second person if the latter is directly followed by the objective, dual, or plural: ʔoʔtitwatékhahsiʔ *we (incl. pl.) separated*, ʔoʔtiswayá:yaʔk *you (pl.) crossed over*; -t- occurs elsewhere: ʔoʔtye:taʔt *she took a stand*, ʔoʔtáhkwaʔt *he lifted it*.

22.4. When it occurs alone with the optative or future morpheme, the duplicative precedes and has the shape t-. The optative and future morphemes occur in their word-initial allomorphs except that they lack initial ʔ: taetwayá:yaʔk *we (incl. pl.) ought to cross over*, tɛye:taʔt *she will take a stand*.

22.5. When the duplicative, primary, and modal prefixes are all three present, the duplicative has the allomorph t- and comes first. The allomorphs of the primary and modal prefixes are like those described in **21.9-11**, except that initial ʔ is lacking and the indicative has the discontinuous shape -ɔ-e-/-ɔ-/-ɔ-a- cf. **21.10**). Examples with the indicative are: tɔtayakwakawe? *we (excl. pl.) rowed back this way*, tɔsa:yá:yaʔk *he crossed back over*. With the optative: tɔ:tá:tka:ɛkoʔ *he ought to look back*, tɔ:teswe? *you (pl.) ought to come back*. With the future: tɛthati:taʔt *they (masc. pl.) will take a stand there* tɛsktas *I'll set it back up*.

23.1. The NEGATIVE prefix is also a single morpheme (teʔ-/te-/taʔ-), which precedes the minimal verb, although there may be an intervening primary or duplicative prefix or both:

Verb	
Negative Prefix	Minimal Verb with or without Primary and/or Duplicative Prefix

As its name implies, the negative morpheme indicates negation: teʔ- in teʔwatiyɛ:thwas *they (nonmasc. pl.) don't plant*, teʔtyenɔkek *she didn't live there*.

23.2. After the negative morpheme the shape of the pronominal prefix is the same as that which occurs after the indicative morpheme (**8.7**, **9.11**, **10.10**, **10.15**, **11.15**), except that the objective allomorph is -a-, not -ɔ- (**10.10**). A modal prefix occurs in its word-initial allomorph, except that the indicative allomorph -ʔa- replaces ʔoʔ- or wa-. If a primary or duplicative prefix is present, it occurs in its word-initial allomorph. The negative allomorphs occur as follows: te- occurs before the same immediately following environments as the indicative allomorph wa- (**8.6**, **9.10**, **10.9**, **10.14**, **11.14**), as well as directly before any modal prefix: tɛɛnɔto:kwas *they (masc. pl.) don't get out of the water*, teʔɔ́khi:kɛh *she doesn't see us*, teʔáyoska:stheʔt *it didn't become the only one*, teʔa:yokwe:niʔ *it might not be possible*; taʔ- occurs before the duplicative morpheme: taʔtéayaʔs *he doesn't break it in pieces*; teʔ- occurs elsewhere: see examples in **23.1** and teʔki:wastéisthak *I wasn't noticing it*, teʔtsétwathɔ:teʔ *we (incl. pl.) aren't listening to him any more*.

23.3. An additional aspect morpheme that occurs only in the presence of the negative prefix is the NEGATIVE PAST. It indicates one unique occurrence in the past, and is thus semantically similar to the punctual morpheme (**8.2**) except for the added element of time. In shape the negative past morpheme consists of ʔ preceded by a phoneme sequence identical with the descriptive allomorph that would be conditioned by the same preceding environments, except that the final ʔ or h or the descriptive allomorph is lacking and the vowel is always weak: téotaʔɔ:ʔ *he didn't go to sleep* (cf. hotáʔɔh *he's asleep*), te:okɛ:ʔ *he didn't see it* (cf. ho:kɛ:h *he has seen it*), téohse:ʔ *he wasn't on horseback* (cf. hohseʔ *he's on horseback*).

24.1. The TRANSLOCATIVE prefix is again a single morpheme (he-/h-/haʔ-) which

[7] In some idiolects -te-.

precedes the minimal verb. There may be an intervening primary prefix (but only the repetitive morpheme, never the cislocative), duplicative prefix, or negative prefix (within which the translocative is infixed):

Verb	
Translocative Prefix	Minimal Verb with or without Primary Prefix and/or Duplicative Prefix and/or Negative Prefix

The translocative morpheme indicates that something takes place in a direction away from the speaker or some other reference point, or, if no change of location is involved, that something is relatively far away (cf. **21.3**): he- in heoyaké?ɔh *he has departed*, heyakawe:nɔ:h *she has gone there*, heshatinɔ:he? *they (masc. pl.) live over there again*. If quantity is involved in the meaning of the minimal verb, the translocative indicates completion or sufficiency. Usually the duplicative prefix is also present in such cases: ha?teyóiwake:h *all the different things, everything*, ha?tékya?ti:h *just me alone*, (without the duplicative) hekáya?ti:h *just it, only*.

24.2. After the translocative morpheme the shape of the pronominal prefix is the same as that which occurs after the optative or future morpheme (cf. **21.5**, **22.2**). The modal, primary, and duplicative prefixes occur in their word-initial allomorphs except that initial ? is lacking. The translocative (-h-) is infixed within the negative, occurring after the t of the negative allomorphs. The translocative allomorphs occur as follows: h- occurs before all morphs that begin with a vowel, before the indicative allomorph -wa-, and within the negative morpheme: heswe:? *you (pl.) went there*, hɛɔyakɛ?t *he'll depart*, hwa:yakɛ?t *he departed*, the?twe:tha? *we (incl. pl.) don't go there*; ha?- occurs before the duplicative morpheme: ha?taetwáya:ya?k *we (incl. pl.) ought to cross over to there*; he- occurs elsewhere: see examples in **24.1**.

25.1. A SECONDARY prefix may also directly precede the minimal verb, or there may be an intervening primary or duplicative prefix:[8]

Verb	
Secondary Prefix	Minimal Verb with or without Primary Prefix and/or Duplicative Prefix

There are three secondary prefix morphemes, the PARTITIVE, COINCIDENT, and CONTRASTIVE.

25.2. The partitive morpheme (ni-/n-/nɔ?-) indicates that a particular part or aspect of what follows is referred to: ni- in niyohsohkó?tɛ:h *it's a (particular) sort of color, what color it is*. It can often be translated *how*, or, with a minimal verb that denotes quantity, *how much, how many*: niyáwɛ?ɔh *how it has happened*, nikye:ha? *how I do it*, niwɛnɔti:h *how many of them (nonmasc. pl.) there are*. It is used in enumeration with numbers of three or more: sɛ (*three*) niyónæhtɔ:t *there are three leaves on it*, sɛ nika:wista:ke:h *three dollars*.

25.3. The coincident morpheme (tsi-/ts-/tsa?-) indicates that the meaning of what follows coincides in time or space with some other reference: tsi- in tsikeksa?a:h *when I was a small child*, tsikɔ:he? *since I've been alive*, tsi:at *while he's standing*; tsa?- in tsa?te:wa? *it's the same size*.

25.4. The contrastive morpheme (thi-/th-/tha?-) indicates a contrast or difference of some sort: thi- in thiyókwe?ta:te? *it's a different person*. The contrast is often with the normal state of things: thikakaitatye?s *it's leaning abnormally back and forth*, thityɔ:he? *we (incl. pl.) are living in an abnormal manner*. If the minimal verb contains both the optative and imperative morphemes, the resultant meaning is that of a negative future: th- in tha:watíyɛthoh

[8] Note that a secondary prefix never occurs together with a negative or translocative prefix, but that the latter two do sometimes occur together (**24**).

they (nonmasc. pl.) aren't going to plant, tha:tékhɔ:nih *he isn't going to eat.*

25.5. After a secondary prefix the shape of the pronominal prefix is the same as that which occurs after the optative or future morpheme (cf. **21.5**, **22.2**, **24.2**). The modal, primary, and duplicative prefixes occur in their word-initial allomorphs except that initial ʔ is lacking and the indicative allomorph is -a- in place of wa- and -aʔ- in place of ʔoʔ-: tsaɛnɔti:yoʔ *when they (masc. pl.) fought*, tsaʔkati:yoʔ *when I fought.* The secondary prefix allomorphs occur as follows: partitive n-, coincident ts-, and contrastive th- occur before all morphs that begin with a vowel: nɛyónishɛʔt *how long the time will become*, nɔʔje:h *do it so!* (**3.14**, **6.5**, and fn. 4 above), tsaʔwátahkwiʔ *when it was finished*, thá:kahtɛ:tih *I'm not going to travel*; partitive nɔʔ-, coincident tsaʔ-, and contrastive thaʔ- occur before the duplicative morpheme: nɔʔté:yatɛʔ *how far apart they (masc. du.) are*, tsaʔtéyoʔtɛ:h *it's of the same kind*, thaʔta:kyaʔk *I'm not going to break it in pieces*; partitive ni-, coincident tsi-, and contrastive thi- occur elsewhere: see examples in **25.2-4**.

THE SO-CALLED INTERROGATIVE ORDER IN CREE[1]

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1. It is still common usage among Algonquianists when discussing the Cree verb to speak of it as falling into four orders: Independent, Imperative, Conjunct and Interrogative. In his historical treatment of Algonquian,[2] Bloomfield pointed out that "in Cree and Ojibwa there is only one mode [of the Interrogative Order], with initial change".[3] The posthumous publication, Eastern Ojibwa,[4] edited by Professor C. F. Hockett, includes no mention of an Interrogative Order of the verb in Ojibwa. Three orders only are listed: Independent, Conjunct and Imperative.[5] The implication is that forms earlier treated as Interrogative have been reclassified.

In an unpublished paradigm of the Cree verb, however, Bloomfield has listed a fourth order, the Interrogative. In view of the well-known fact that "the [Algonquian] languages differ widely in their stock of modal forms; all seem to have lost a few, and some languages have created new ones,"[6]—it might be well to investigate the situation with regard to orders as well as modes, and for Cree as well as for Ojibwa.

The purpose of the present paper is to query the status of the Interrogative as a distinct order in the Cree verb, and, in addition, to demonstrate that it is neither archaic,[7] as has been asserted, nor that it always occurs in changed form.[8]

2.1. Since the present discussion centres about so-called 'orders' of the verb, some indication of what we mean by 'order' might be given. In Algonquian languages the term is applied to sets of inflectional affixes, and the definition furnished by Gleason is useful: "Orders are . . . mutually exclusive classes of morphemes occupying definable places in the sequence of morphemes forming a word."[9]

2.2. A few examples will serve to set off certain parallels and contrasts. Below are cited forms for the Independent Order in both Indicative and Dubitative Modes (non-preterit), followed by forms from the Conjunct and Interrogative Orders, Indica-

[1] The present treatment is based on Moose Cree spoken in the area of Moosonee and Moose Factory, Ontario, and to the south and west of James Bay. Retention of PCA /l/ will be noted, yielding the three-way contrast: /l/, /n/, /y/.

Thanks are expressed to Annie Scott of Fort Albany, Ont., and Steven Beardy, Big Trout Lake, Ont., both native speakers of Cree, who kindly checked a number of forms for me.

[2] Linguistic Structures of Native America, ed. Harry Hoijer; Viking Fund Publications in Anthropology, No. 6; New York, 1946.

[3] op. cit. p. 103.

[4] Eastern Ojibwa, by L. Bloomfield; U. of Michigan Press, 1956.

[5] op. cit. p. 35, par. 5.13. [Since writing the foregoing, Bulletin 167 of the National Museum of Canada has been released, "Notes on Mistassini Phonemics and Morphology", by Jean Rogers, dated 1958. In this, three orders are distinguished for the verb in East Cree. No interrogative forms, however, occur in the material. In "Cree: an Intensive Language Course", by Mary Edwards, Meadow Lake, Sask., 1954, the Imperative, Independent and "Subordinate" (i.e., Conjunct) "moods" are treated. Again none of the forms traditionally classified as Interrogative are discoverable in the text.

In neither of the above is there any discussion of grounds for change from a four to a three-order classification.]

[6] LSNA, p. 97, par. 33.

[7] Cf. The Plains Cree Language, L. Bloomfield, Atti del XXII Congresso Internazionale degli Americanisti, II., (4): "The interrogative is archaic and rare." While this is an early statement, Bloomfield's extensive reliance on texts may be recalled. Had time allowed, the Interrogative would no doubt have met with further consideration.

[8] LSNA, p. 103, par. 50.

[9] H. A. Gleason, Jr., An Introduction to Descriptive Linguistics, Henry Holt and Co., 1955; p. 112.

tive (non-preterit) in both cases. The Intransitive Verb with Animate Subject (AI Verb), is used in both its relational and non-relational inflections. Since AI Conjunct and Interrogative endings in the relational inflection are essentially the same as those of the Transitive Verb with Animate Object (TA Verb), except for plural and obviative object indicators, and of the Transitive Verb with Inanimate Object (TI Verb), relational inflection,[10] the AI Verb furnishes the most convenient illustrative material in a small compass.

2.2.1. The following is a list of AI non-relational inflections:

	Independent Indicative	Independent Dubitative	Conjunct Indicative	Interrogative
I[11]	-n	-na·tokwe	-ya·n	-wa·ne
U	-n	-na·tokwe	-yan ~ -yin	-wane
II	-na·n	-na·na·tokwe	-ya·hk	-wa·hkwe
UI	-na·naw	-na·na·tokwe	-yahk	-wahkwe
UU	-na·wa·w	-na·wa·tokwe	-yek	-wekwe
3	-w	-tokwe	-t	-kwe
3pl	-wak	-tokwenak	-cik	-wa·kwe
3'	-liwa	-litokwe	-lici	-likwe
passive (Impersonal)	-(na·)niwan	-(na·)niwanotokwe	-(na·)niwahk	-(na·)niwanokwe

2.2.2. The AI relational inflections are listed below: (Marker of the AI relational stem is /-w-/, followed in the Independent Order by stem-vowel /-a·- ~ -e·-/, after which the inflectional affixes occur. There is no relational stem for 3'. /-e-/ is always to be read as long.)

	Independent Indicative	Independent Dubitative	Conjunct Indicative	Interrogative
I	-w-a·-n	-w-a·-na·tokwe	-w-ak	-w-a·wake
U	-w-a·-n	-w-a·-na·tokwe	-w-at	-w-a·wate
II	-w-a·-na·n	-w-a·-na·na·tokwe	-w-akiht	-w-a·wakihte
UI	-w-a·-na·naw	-w-a·-na·na·tokwe	-w-ahk	-w-a·wahkwe
UU	-w-a·-na·wa·w	-w-a·-na·wa·tokwe	-w-ek	-w-a·wekwe
3	-w-e-w	-w-a·-tokwe	-w-a·t	-w-a·kwe
3pl	-w-e-wak	-w-a·-tokwenak	-w-a·cik	-w-a·wa·kwe
3'	-liwa	- - -	-lici	(-likwe ?)
passive (Impersonal)	(-w-a·-n)[12]	(-w-a·-na·tokwe)[12]	-w-iht	-w-a·wihte

2.3. It will be recalled that our definition of an order involved mutually exclusive classes of morphemes. At the same time it will be noted that as far as the inflectional affixes themselves are concerned, those of the so-called Interrogative set are no more exclusive of those of the Conjunct than are those of the Independent Dubitative of the Independent Indicative. Yet the latter are classed as modes of the same order, the former (columns 3 and 4), as different orders! The point is that the inflectional content of columns 1 and 3, rather than being replaced by something different and unre-

[10] The same correspondences can be demonstrated to a greater or lesser degree with the TI Non-Relational Inflection, and the Inanimate Intransitive Verb.

[11] I = 1st pers. sing.; U = 2nd pers. sing.; II = 1st pers. plur., excluding addressee; UI = 1st pers. plur., including addressee; UU = 2nd pers. plur.; 3 = 3rd pers. sing., proximate; 3pl = 3rd pers. plur., proximate; 3' = 3rd pers. obviative (sing. or plur.). These symbols were, I believe, suggested by Professor F. Householder for use with Algonquian languages, and passed on to me by Dr. William Gage, Institute of Applied Linguistics, Washington, D. C.

[12] Not heard colloquially by the author, but reported to exist.

lated, is by-and-large included in columns 2 and 4 respectively, with additional (modal) material. While there is no doubt as to the membership of the Independent Indicative (column 1), and the Independent Dubitative (Column 2), in the same order, even here allomorphic variants tend to obscure the relationship,[13] especially in the third person forms. An inspection of Conjunct Indicative and Interrogative sets within the non-relational inflection offers less immediately obvious support for our contention. Observable, formal similarity between the corresponding columns of the relational inflection offers more. In short, although any sweeping, comparative statement requires some comment as to detail, nonetheless this does not weaken the assertion that bald replacement alone between the members of columns 3 and 4 is no more the case than between members of columns 1 and 2. On purely morphological grounds then, one is less disposed to regard columns 3 and 4 as containing mutually exclusive classes of inflectional morphemes than was heretofore the case. A glance at the Subjunctive Mode of the Conjunct Order lends additional weight to this view.

	A (AI) Non-Relational Inflection	B Relational Inflection
I	-ya·ne	-w-ake
U	-yane∼-yine	-w-ate
II	-ya·hke	-w-akihte
UI	-yahkwe	-w-ahkwe
UU	-yekwe	-w-ekwe
3	-te	-w-a·te
3pl	-twa·we	-w-a·twa·we
3′	-lite	
passive (Impersonal)	(na·)niwahke	-w-ihte

A comparison of column A above with column 4 of **2.2.1**, or of B with column 4 of **2.2.2**, will serve to point up further the shared morphological content of the Conjunct classes of morphemes with those of the 'Interrogative' Order. Indeed, a parallel may be observed between the Conjunct Indicative and 'Interrogative' not unlike that seen to exist between the Independent Indicative and Independent Dubitative. The corresponding preterit forms have not been listed; but a comparison of preterits does nothing to render the parallel less marked.

3. An examination of the morphology of the 'Interrogative' Order, while strongly suggestive that some reclassification may be called for, is by no means wholly conclusive. Before any final decision can be reached, the function of the 'order' in question must be considered at the syntactic level.

3.1.1. The 'Interrogative' Order, like the Indicative and Subjunctive Modes of the Conjunct, replaces the Independent Order in dependent clauses,—in the case of the 'Interrogative', clauses of a type involving certain expressions of doubt or probability. Note the following examples and parallels on page 122.

3.1.2. The first thing to be noted from examples is the parallel usage between the Conjunct Indicative and 'Interrogative' for the reporting in a dependent clause (right-hand column) of material first stated in an independent clause (left-hand column). Next to be observed is a further parallel between the relation of the Independent Indicative to the Conjunct Indicative on the one hand, and that of the Independent Dubitative to the 'Interrogative' on the other. In short, the investigator is now faced with two sets of observations:

a) On the level of morphology the inflectional affixes of the 'Interrogative' Order cannot be regarded as mutually exclusive of those of the Conjunct Indicative, any more than those of the Independent Dubitative are of the Independent Indicative set.

b) On the syntactic level, the relation of the Conjunct Indicative to the Independent

[13] The richness of allomorphic variants in the Cree verb, and their resistance to neat distributional statement is sufficiently well-known to have been cited in an introductory text. Cf. H. A. Gleason, ut cit. supra, pp. 117–122.

INDEPENDENT INDICATIVE	CONJUNCT INDICATIVE
1. pipon anta. *It is winter there.*	nit-itelihten e-pipohk anta. *I think that it is winter there.*
2. ki·-ošihta·w. *He made it.*	ni-kiskelima·w e-ki·-ošihta·t. *I know that he made it.*
3. ki-wi·-ošihta·n ci·ma·n. *U are going to build a canoe.*	kit-itelimitin e-wi·-ošihta·yan ci·ma·n. *I think U are going to build a canoe.*
4. ka-nisitohten. *U will understand it.*	ki·la ke-nisitohtaman. *It is U who will understand it.*
5. ni-ka-wa·pama·w. *I shall see him.*	(ililiw) ke-wa·pamak. (*The person*) *whom I shall see.*
INDEPENDENT DUBITATIVE	**INTERROGATIVE**
1. piponotokwe anta. *It must be winter there.* (Probability)	nit-itelihten e-piponokwe anta. *I think it must be winter there.* (Probability)
	mo·la ni-kiskelihten peponokwe anta. *I don't know whether it is winter there.* (Doubt)
2. ki·-ošihta·tokwe. *He must have made it.* (Probability)	nit-itelima·w e-ki·-ošihta·kwe. *I think he must have made it.* (Probability)
	mo·la ni-kiskelima·w awenihka·n ka· ki·-ošihta·kwe. *I don't know who* (*must have*) *made it.* (Doubt)
3. ki-wi·-ošihta·na·tokwe ci·ma·n. *U must be going to make a canoe.* (Probability)	kit-itelimitin e-wi·-ošihta·wane ci·ma·n. *I think U must be going to make a canoe.* (Probability)
	mo·la ki-kiskelimitin wa·-ošihta·wane ci·ma·n. *I don't know whether U are going to build a canoe.* (Doubt)
4. ka-nisitohtena·tokwe. *I suppose U will understand.* (Doubt)	mo·la ni-kiskelihten ke-nisitohtamowane. *I don't know whether U will understand.* (Doubt)
5. ni-ka-wa·pama·tokwe. *I shall see him, I suppose.* (Doubt)	mo·la ni-kiskelima·w ke-wa·pama·wakwe. *I don't know whether I'll be seeing him.* (Doubt)

Indicative is parallelled by that of the 'Interrogative' to the Independent Dubitative.

On the basis of both these parallels then, it is concluded that in Cree as in Ojibwa the so-called Interrogative Order would be better classified as the Dubitative Mode of the Conjunct Order.[14]

3.2. The organization of the orders, modes and tenses of the Cree verb may be represented as follows (traditional organization first,[15] with revised organization[16] following).

ORDER	MODE	TENSE	SUBMODE
Independent	Indicative	(Present)	
		Preterit	
	Dubitative	(Present)	
		Preterit	
Conjunct	Indicative	(Present)	Simple
			Changed
		Preterit	
	Subjunctive		Simple
			Changed
Interrogative		Present	Changed
		Preterit	Changed
Imperative		Present	
		Future	

ORDER	MODE	TENSE	SUBMODE
Independent	Indicative	Neutral	
		Preterit	
	Dubitative	Neutral	
		Preterit	
Conjunct	Indicative	Neutral	Simple
		Preterit	Changed
	Subjunctive	Neutral	Simple
			Changed
	Dubitative	Neutral	Simple
		Preterit	Changed
Imperative		Immediate	
		Deferred	

[14] This relationship was noted by Horden, who wrote: "The Dubitative (Interrogative) is the subjunctive (Conjunct) of the suppositive (Dubitative), and expresses doubt and uncertainty; . . ."—from A Grammar of the Cree Language, by the Rt. Rev. J. Horden, D.D., London, 1881 p. 34. Brackets in the quoted section are mine, and the bracketed terms are the accepted Bloomfieldian equivalents of Horden's. The situation is stated backwards by Horden, although he was sensitive to the relationship, and is still remembered by a handful of aged persons for the ease and correctness with which he used the language.

[15] The diagram is a simplified version of Bloom-

4. While the Revised Organization diagram in the foregoing paragraph involved changes in the Submode column, these have not as yet been justified. There remain still to be discussed whether the Conjunct Dubitative always occurs in changed form and whether it is archaic, as alleged. A glance at another type of dependent clause throws further light on this matter. Each of the clauses below represents the protasis to a conditional statement, and is introduced by the conjunction kiša·spin, *if*. The list, while not exhaustive, shows features relevant to the considerations at hand.

1. kiša·spin ihta·te o·ta . . . *if he will be here* . . ; 2. kiša·spin ehta·ci o·ta *if he is ever here.*

HYPOTHETICAL: 3. kiša·spin ihta·t o·ta . . . *if he be (is) here* . . ; 4. kiša·spin ki·-ihta·t o·ta . . . *if he were to have been (had been) here* . . .

IMPROBABLE: 5. kiša·spin ehta·kwe o·ta . . . *if he is (really) here* . . ; 6. kiša·spin ka·-ihta·kwe o·ta *if he was (really) here.*

CONTRARY TO FACT: 7. kiša·spin ihta·-kopane o·ta . . . *if he were here* . . ; 8. kiša·spin ki·-ihta·kopane o·ta . . . *if he had been here.*

CITATION OF FACT: 9. kiša·spin ehta·-kopane o·ta . . . *if he was staying here* . . . 10. kiša·spin ma·na ehta·kopane o·ta *if he used to stay here repeatedly* . . .

4.1. In certain constructions the vowel of the initial syllable in the verb form undergoes change on a regular pattern.[17] Where the initial element in the form is a prefix of some kind or initial stem, then the initial syllabic of this element takes the change as part of the macro-word.[18] In the *if*-clauses cited above, six forms occur in the Conjunct Dubitative. Four of these (5, 6, 9 and 10) are in changed form.[19] Neither of the Contrary to Fact examples (7 and 8) occurs in changed form. The examples in **3.1.1**, under Interrogative, show a distinction between the use of simple forms with the aorist prefix, e-, and the changed form. In each case listed as 'Doubt' the changed form is used, except for #2, where in ka·-ki·-ošihta·kwe, the completed-action marker, ki·-, is required to appear in unchanged form after the relative ka·. In all cases marked 'Probability', the unchanged or simple form is used. This contrast is particularly clear in #1. e-piponokwe versus peponokwe, and #3. e-wi·-ošihta·wane versus wa·-ošihta·wane.

In the light of the above it must be concluded that the Conjunct Dubitative is used in both changed and unchanged or simple forms.

4.2. Finally to be considered is the matter of whether the Conjunct Dubitative is 'archaic' or not.

It will be observed that examples 5 to 10 of the *if*-clauses, while cast in the Conjunct Dubitative are in no way especially archaic. Other instances of colloquial usage are by no means infrequent in occurrence, as a

field's schema. The term "present", in brackets, is supplied for the Independent and Conjunct Indicative, since the tense has sometimes been listed under the mode name only: e.g., Independent Indicative (only), but Independent Indicative Preterit.

[16] The term 'neutral' was suggested to me by John Wevers of Toronto, and Richard H. Robinson, now of the University of Wisconsin. It was found useful by them in the English programme for New Canadians conducted at the University of Toronto. I am also indebted to C. F. Hockett for suggestions in diagramming.

[17] The vowel changes on the West Coast of James Bay are:

i > e,	nipa·t > nepa·t;
o > we,	ohci·t > wehci·t;
a > e,	mawapit > mewapit;
i· > a,	ki·wet > ka·wet;
e > iye,	peht- > piyeht-;
o· > wa·,	po·sit > pwa·sit;
a· > eya·,	a·hkosit > eya·hkosit

(Note: /e/ is always long.)

[18] I am indebted to C. F. Hockett for the term. Cf. also Tagmemic Analysis of a Restricted Cree Text, C. Douglas Ellis, in Journal of the Canadian Linguistic Association, 6.1, p. 35, fn. 1.

[19] Changed form of the completed-action aspect marker ki·- is ka·-; of incomplete or uninitiated action marker ka- ∞ kata-, the changed form is ke-. Cf. fn. 17 supra.

review of the examples in **3.1.1**, will suggest. As a matter of interest, the Conjunct Dubitative is heard recurrently in daily conversation, whenever circumstances require, and several factors probably account for the failure to record its usage more fully: In the first place, not all statements indicating doubt or probability are handled by the Dubitative Mode in Cree. *He might go*, is commonly expressed by the particle ma·sko·c *perhaps*, plus the aspect marker signalling action not yet undertaken or incomplete, kata- (or the abbreviated form ta-), plus the Independent Preterit itohtepan: i.e., ma·sko·c ta-itohtepan = *Perhaps he would go*. The English, *I wonder if he's there*, would normally be rendered in Cree by ta·pask ihta·w anta, where ta·pask is a particle signalling doubt and translatable as *probably not* rather than *probably*. ihta·w is the Independent Indicative Neutral with the meaning *he (or she) is (at a place)*; anta, the particle *there*. Since, then, the Dubitative does not cover all situations of doubt and/or probability, it may often escape the eliciting process and occur less frequently than the English speaker might expect. A further factor conditioning use of the Dubitative is that situations in the non-linguistic environment leading to its use are not perhaps of unduly high frequency. A third consideration, sometimes, it is feared, insufficiently weighed, is that analysts may fail to acquire a control of the language sufficient to catch forms of low incidence in colloquial use. That the form in question, the Dubitative Mode of the Conjunct Order, has archaic usage is not disputed. That it occurs only as an archaism is manifestly not the case.

HISHKARYANA (CARIB) SYNTAX STRUCTURE I: WORD*

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0. Introduction
1. Word

0. The syntax of Hishkaryana[1] is presented[2] here in terms of three basic structural levels; in ascending order, ranging from the least to the most complex, these are: word level, phrase level, and sentence level. These levels contrast in the type of structures which are included within them and in their distribution within a larger matrix. There are levels lower than the word, such as stems and affixes; these are dealt with here in a general way in the description of the word level. At the other extreme there are probably significant levels of structure beyond the sentence, such as the paragraph and the discourse; these have not yet been adequately studied and are not dealt with in this paper.

The total structures at one level usually constitute the included units at a higher level. Thus, the word constitutes one of a potential sequence of items on the phrase level; conversely, the phrase consists of a potential sequence of words. Frequently the structure at one level is identical with the total structure at a higher level. Thus, a word may constitute a complete phrase or sentence. Occasionally a structure at one level constitutes an included unit of another structure at the same level. Thus, certain types of phrase occur as one of a sequence of units which constitute another type of phrase. In one instance a structure at one level constitutes an included unit of a structure at a lower level. This occurs where certain types of noun phrase form the stem of a derived noun.

This presentation is based on the tagmemic theory developed by Pike[3] and closely follows Pickett's model[4] based on a particular variant of that theory. An essential feature of the theory is the emphasis on the correlation between slot (position of occurrence) and filler (class which fills that position), which together constitute an included unit, the tagmeme, at each level of structure. In the conventional formulaic representations the tagmeme has been shown as: slot name:slot-filler name. For

* Part II, Phrase and Sentence, follows in a later issue of IJAL.

[1] Hishkaryana is a member of the Carib linguistic family and is spoken along the middle and upper courses of the river Nhamundá in northern Brazil. There are about 120 speakers. It is closely related to Waiwai (cf. W. Neill Hawkins. A Fonologia da Língua Uáiuái. Universidade de São Paulo, Boletim 157, Etnografia e Tupi-guarani 25; São Paulo 1952. pp 49; and also W. Neill Hawkins and Robert E. Hawkins. Verb inflection in Waiwai (Carib), IJAL 19.201-11, 1953).

The phonemes of Hishkaryana are: high vowels —e, ï, u; low vowels—a, o; consonants—p, t, k, f (bilabial fricative), s, š, c (alveopalatal affricate), m, n, ñ, r (alveolar flap), r̃ (alveopalatal flap), w, y, h; vowel length is phonemic; no final conclusions have been reached with regard to stress, but it is not marked in this paper.

[2] This presentation is based on data collected on three field trips, covering a total period of ten months, in 1959 and 1960. The data consisted of conversational pieces and eight tape recorded texts. This paper was prepared as part of the Linguistic Workshop requirements of the Summer Institute of Linguistics at the University of Oklahoma in the summer of 1960. The author is especially indebted to Sarah Gudschinsky for help received between field trips and to Viola Waterhouse for help in organizing the data in the workshop.

[3] K. L. Pike. Language in relation to a unified theory of human behavior. Glendale, California, Part I 1954, Part II 1955, Part III 1960.

[4] Velma Bernice Pickett. The Grammatical Hierarchy of Isthmus Zapotec. Language, Vol. 36, No. 1 (Part 2) Supplement (Language Dissertation No. 56). For other presentations of variants of this model see IJAL 23 (July, 1957).

simplicity of presentation formulas in this paper[5] show only one name for the whole unit, but it is important to recognize that this does not reflect any change in the basic slot-filler correlation concept.

The structures at each level are divided into classes or types which have identificational contrastive features. The criteria of classification are two: external distribution and internal structure. Thus, on the word level there are classes of verbs and nouns which contrast: (i) in their external distribution—they fill different slots on the phrase level; (ii) in their internal structure—they are composed of different stems and affixes. The term hyperclass is used to describe a set of classes which, though they have certain contrastive features which require that they should be set up as different classes, have some features in common. Thus, the verb hyperclass consists of ten classes of verbs which: (i) fill the head slots of verb phrases, which in turn fill the predicate slots of sentences; (ii) have overlapping internal features—in some verb classes the stems overlap and in others the affixes overlap.

1. The word is defined as the minimum syntactic unit. It is composed of a single morpheme or of a stem with one or more derivational or inflectional affixes. It fills a slot at phrase (most commonly) or sentence level. Word classes are grouped together into six hyperclasses: verb, noun, attributive, locative, time, and particle. In the description which follows allomorphic conditioning[6] is not stated since this does not influence the syntactic function of the word.

1.1. The verb hyperclass consists of ten classes of verbs: 1. intransitive declarative, 2. intransitive declarative motion, 3. transitive declarative, 4. transitive declarative quotation report, 5. stative declarative, 6. intransitive imperative, 7. intransitive imperative motion, 8. transitive imperative, 9. transitive imperative quotation report, 10. stative imperative. Each of these classes manifests the tagmeme, verb phrase head (V×H), in the corresponding verb phrase.

Tagmemic formulas for verb classes are given below:

V1. Intransitive declarative verb = +Intr.Pers.Mg. +/−Intr.BaseIn.Var. +Intr.Base +/−BaseComp. +Intr.Ten-Asp.Mg.

V2. Intransitive declarative motion verb = +Intr.Pers.Mg. +Intr.Mot.Base +/−BaseComp. +Intr.Ten-Asp.Mg.

V3. Transitive declarative verb = +Tr.Pers.Mg. +/−Tr.BaseIn.Var. +Tr.Base +/−BaseComp. +Tr.Ten-Asp.Mg.

V4. Transitive declarative quotation re-

[5] Other formulaic representations in this paper are: 1. + indicates obligatory occurrence of the tagmeme following it; ± indicates optional occurrence of the tagmeme following it; +/− indicates obligatory occurrence or obligatory non-occurrence of the tagmeme following it, depending on certain co-occurrence restrictions which are described in the text; 2. In illustrations, the tagmemes of the level under discussion are separated by a dash (-) in citation form, formulaic representation, and English literal translation. Where necessary for clear understanding, tagmemic formulaic representations are given in square brackets immediately following the citation form and free translations are given in parentheses immediately following the literal translation. Parentheses are also used at certain points for separating context illustration from illustration under focus.

[6] A brief statement of morphophonemics is given here: 1. Vowel loss: ĭ and u are unstable vowels and are frequently lost at morpheme boundaries; e and o are partially unstable and are lost in a limited number of environments. 2. Vowel harmony: o is replaced by a, and ĭ is replaced by u, where there are one or more contiguous syllables containing a and u respectively. 3. Consonant fusion: when n and y, and r and y, come together at morpheme boundaries, they fuse to ñ and r̃ respectively. 4. Palatalization of alveolar consonants: in a limited number of environments the following changes take place: en becomes ñ; s becomes š and t becomes c (following the vowels e and a). 5. Consonant replaced by another consonant: k is replaced by h when followed by k, s, š, t, or c within a word; h is replaced by p when preceded by m.

port verb = +Tr.Pers.Mg. +Tr.Quot.Rep. Base +/−BaseComp. +Tr. Ten-Asp. Mg.

V5. Stative declarative verb = +St. Pers.Mg. +St.Base +/−St.BaseComp. +St.Ten-Asp.Mg.

V6. Intransitive imperative verb = +/−Imp.Pers.Mg. +Intr. Base + Intr. Imp.Act.Mg.

V7. Intransitive imperative motion verb = +/−Imp.Pers.Mg. +Intr.Mot.Base +Intr.Imp.Act.Mg.

V8. Transitive imperative verb = +/−Tr.BaseIntro. +Tr. Base +Tr.Imp. Act.Mg.

V9. Transitive imperative quotation report verb = +Tr.Quot.Rep.Base +Tr. Imp.Act.Mg.

V10. Stative imperative verb = +St.Base +St.Imp.Mg.

The intransitive declarative verb (VI) manifests the tagmeme +V×1H in the intransitive declarative verb phrase. It has the meaning of action, other than motion, that is not directed toward a goal. Internal structure is shown above. It contrasts with other verb classes, except V6, in the class of stems which manifest the base tagmeme. It further contrasts with other verb classes, except V2, in the class of prefixes which manifest the person margin tagmeme, and the class of suffixes which manifest the tense-aspect margin tagmeme. The internal structure is now described:

The obligatory intransitive base tagmeme (+Intr.Base) occurs in word medial with the meaning of the basic intransitive item that expresses action, other than motion, which is not directed toward a goal. It is manifested by a class of intransitive stems with or without derivational suffixes. The stem class consists of one of the following: (a) intransitive root 1 class. -nïk- *to sleep*, -no- *to sink*. (b) Intransitive root 2 class and root complement 1 class. The root complement 1 class has only one member, -rï-, and is obligatory when followed by the base complement tagmeme or the intransitive tense-aspect margin when this is manifested by -ye- *distant past tense, completive aspect, individual actor*. Root complement 1 never occurs elsewhere. Intransitive root 2 class consists of a small number of roots that occur with this complement. -onu- *to be born* +/− rï *root complement 1*: nenuno [n-enu-no] *he was born* (*immediate past*), nenuřako [n-enu-rï-ya-ko] *he was born* (*recent past*), nenuře [n-enu-rï-ye] *he was born* (*distant past*). (c) Intransitive root 3 class and root complement 2 class. The root complement 2 class has only one member, -ïm, and is obligatory when followed immediately by the intransitive tense-aspect margin and optional when followed by the base complement. Intransitive root 3 class consists of a small number of roots having morpheme final consonant t, n, or w. -okaht- *to run* +/± ïm : kokahtïmno *I ran* (*immediate past*), kokahtaha *or* kokahtïmyaha *I will run*; -cokon- *to hiccough* +/± ïm : co.konïmsï *I am hiccoughing*, co.konïmyako *or* co.konako *I hiccoughed* (*recent past*); -eřew- *to have pain* +/± ïm : neřewimye *he had pain* (*distant past*), neřewimyano *or* neřewano *does he have pain?*. (d) Non-intransitive root 1 class and intransitivizer 1 class. Non-intransitive root 1 class comprises certain transitive verb roots, noun roots and neutral roots. Intransitivizer 1 class has only one member, -ta-. -one- *to see* (tr. root) + ta > onta- *to be awake*, -otak- *saliva* (noun root) + ta > -otahta- *to spit*, -esa- *place, location* (neut. root) > -esata- *to stop*. (e) Intransitivizer 2 class and non-intransitive root 2 class. Intransitivizer 2 class has only one member, -e- ∼ -(as ∞ at)- ∼ -(os ∞ ot)- and sometimes carries the meaning of reflexive or passive voice in addition to that of intransitivizer. The non-intransitive root 2 class consists of certain transitive verb bases and neutral roots. -e- + -hutwa- *to think* (tr. base) > -ehutwa- *to think to oneself*, -as- + -anïm- *to raise* (tr. base) > -asanim- *to stand up i.e. to raise oneself*, -at- + -ak- *to burn* (neut. root) > -atak- *to burn* (intr.), -at- + -akïhto- *to make* (tr. base) > -atakïhto-

to be made, -os- ⊣ -ohcema- *to treat with remedy* (tr. base) > -osohcema- *to treat oneself*, -os- + -ereh- *to scare* (tr. base) > -osereh- *to be afraid*, -ot- + -owï *to leave* (tr. base) > -otowï- *to be left*. The optional derivational suffixes which may occur with the class of stems described above are: -hkah- *cessation of action*, -ahataka- *to come out* + -hkah- > -ahatakahkah- *to stop coming out*; -tïhka- *completion or superlative*, -no- *to sink* + -tïhka- > -notïhka- *to sink completely*.

The obligatory intransitive person margin tagmeme (+Intr.Pers.Mg.) occurs in word initial with the meaning of the person of the actor. It is manifested by a class of inflectional prefixes: kï- *first person, single individual*; tï- *first person inclusive, collective*; mï- ∞ o- ∞ ow- *second person*; nï- ∼ O- *third person* or *first person exclusive, collective* when co-occurring with the free form demonstrative amna *we* (*exclusive*). Examples of these prefixes in intransitive verbs are given in the description of the intransitive tense-aspect margin.

The intransitive base initial variant tagmeme (+/−Intr.BaseIn.Var.) occurs with a sub-class of intransitive bases which have morpheme initial *o*. The *o* changes to *e*, but only following the intransitive person margin nï- *third person* or *first person exclusive*: kokahtano *I ran*, nekahtano *he ran* (where the intransitive base is -okaht-); oyonuře *you were born*, nenuře *he was born* (where the base is -onu-); tonmahyaha *we* (*inclusive*) *will pass the day*, amna nenmahyaha *we* (*exclusive*) *will pass the day* (where the base is -onmah-).

The base complement tagmeme (+/−BaseComp.) occurs immediately following the intransitive base (it also occurs following the transitive base). It is obligatory when the intransitive tense-aspect margin is manifested by members of sub-class (b) of the suffixes which manifest that tagmeme; it never occurs when the intransitive tense-aspect margin is manifested by members of sub-class (a). These sub-classes are described below and examples of occurrence of the base complement are given in the description of sub-class (b). The class manifesting the base complement has only one member: -ya- ∼ -a- ∼ -O- ∼ (base final *a* or *o* changes to *e*).

The obligatory intransitive tense-aspect margin tagmeme (+Intr.Ten-AspMg.) occurs word finally with the meaning of the tense and aspect of the action. It is manifested by a class of inflectional suffixes. As indicated in the preceding paragraph this class of suffixes is divided into two subclasses: (a) those which immediately follow the intransitive base and never co-occur with the base complement, and (b) those which immediately follow the base complement and never occur without it.

Members of subclass (a) are. -sï *present tense, continuative aspect, first person individual actor*: kmanhosï *I am dancing*; -tano *immediate future tense, involving motion to another location, first person actor*: knihtano *I go* (*there*) *to sleep*; -ñe *hortatory action, first person inclusive* (*two only*): temtakmañe *let us* (*two*) *take a meal*; -ce *hortatory action, first person inclusive* (*three or more*): twano.tace *let us* (*all*) *sing*; -no *immediate past tense, individual actor*: ahakano *you awoke*; -cowï *immediate past tense, collective actor*: nasanïmcowï *they all stood up*; -ye *distant past tense, completive aspect, individual actor*: kasawnukye *I went up river*; -cownï *distant past tense, completive aspect, collective actor*: manhocownï *they all danced*.

Members of sub-class (b) are -ha *present tense, individual actor, second or third person only* or, *future tense, individual actor, any person*: nekayïmyaha *he climbs*, kokayimyaha *I will climb*; -ce *present or future tense, collective actor, second or third person only*: nekayïmyace *they all climb*; -ko *recent past tense, completive aspect, individual actor*: krateko *I wept*; -co.ko *recent past tense, completive aspect, collective actor*: nïrateco.ko *they all wept*; -knano *recent past tense, continuative aspect, individual actor*; orwonï-

myaknano *you were talking*; -ckenano *recent past tense, continuative aspect, collective actor*: orwonïmyackenano *you all were talking*; -konï *distant past tense, continuative aspect, individual actor*: noserehyakonï *he was afraid*; -ckoni *distant past tense, continuative aspect, collective actor*: noserehyackonï *they all were afraid*; -no *future tense, uncertain aspect, individual actor*: kamarekyano *I may hunt*, ayamarekyano *will you hunt?*; -cowï *future tense, uncertain aspect, collective actor*: namarekyacowï *will they all hunt?* or, *they may all hunt.*

The intransitive declarative motion verb (V2) manifests the tagmeme +V×2H in the intransitive declarative motion verb phrase. It has the meaning of intransitive action involving motion. Internal structure is the same as the VI class already described, except that (i) there is no base initial variant tagmeme, and (ii) the intransitive motion base tagmeme (+Intr. Mot.Base) is manifested by a small class of roots with the meaning of action involving motion: -to- *to go*, -omok- *to come*. Only V2 can co-occur with motion modifier (or purpose) tagmeme (see **3.2**).

The transitive declarative verb (V3) class manifests the tagmeme +V×3H in the transitive declarative verb phrase. It has the meaning of action that is directed toward a goal. Internal structure is shown in table 1. It contrasts with other verb classes, except V8, in the class of stems which manifest the base tagmeme. It further contrasts with other verb classes, except V4, in the class of prefixes which manifest the person margin tagmeme and in the class of suffixes which manifest the tense-aspect margin tagmeme. The internal structure is now described.

The obligatory transitive base tagmeme (+Tr.Base) occurs in word medial with the meaning of the basic transitive item that expresses action which is directed toward a goal. It is manifested by a class of transitive stems with or without derivational suffixes. The transitive stem class consists of one of the following: (a) transitive root 1 class with or without causative suffix. Transitive root 1 is a large class of roots, -ama- *to cut (wood)*, -ono- *to eat (meat)*. The causative suffix is -ho-, -ay- *to bake* + -ho- > -ayho- *to cause to bake*, -one- *to see* + -ho- > -oñho- *to show.* (b) Transitive root 2 class and root complement 1. Root complement 1 is identical in form and in its co-occurrence restrictions with the root complement 1 of the intransitive verb. Transitive root 2 class consists of a small number of roots that occur with this complement, -a- *to take* +/− -rï- : nano [n-a-no] *he took it (immediate past)*, naŕako [n-a-rï-ya-ko] *he took it (recent past)*, narïye [n-a-rï-ye] *he took it (distant past)*. (c) Non-transitive root class and transitivizer class. Non-transitive root class consists of certain intransitive roots, noun roots and neutral roots. Transitivizer class comprises (i) causatives - -ka-, -to-, -noh-, -nïh-, -nohka-, -nïhka-, -re-; (ii) benefactives - -ma-, -ha-; (iii) reversative - -ka-. -wayeh- *to die* + -ka- *causative* > -wayehka- *to kill*; -ïyho- *plantation* (noun) + -to- *causative* > -ïyhoto- *to cause to have a plantation*; -ake- *to burn* (neut.) + -noh- *causative* > -akñoh- *to burn* (tr.); -hana- *ear* (noun) + -nïh- *causative* > -hananïh- *to cause to hear, to teach*; -no- *to sink* (intr.) + -nohka- *causative* > -nonohka- *to sink* (tr.); -atïkna- *to stop* (intr.) + -nïhka- *causative* > -atïknanïhka- *to stop* (tr.); -heramuk- *to sweat* (neut.) + -re- *causative* > -heramukre- *to cause to sweat*; -ohce- *remedy* (noun) + -ma- *benefactive* > -ohcema- *to treat (with remedy)*; -woku- *drink* (noun) + -ha- *benefactive* > -wokha- *to give a drink to*; -heremu- *branch* (noun) + -ka- *reversative* > -heremka- *to pull off a branch.* The derivational suffixes which occur with transitive stems are the same as those which occur with intransitive stems; -owï *to take out* + -hkah- *cessation of action* > -owïhkah- *to stop taking out*; -ka- *to do* + -tïhka- *completion* > -kacehka- *to finish.*

The obligatory transitive person margin tagmeme (+Tr.Pers.Mg.) occurs in word

initial with the meaning of the person of the actor and the person of the goal of the action. It is manifested by a class of inflectional prefixes: w- ~ u- ~ O- ~ (vowel length in initial syllable of the base) *first person individual actor, third person goal*; kï- *first person individual actor, second person goal* or, *third person actor, first person inclusive goal*; tï- *first person inclusive actor, third person goal*; mï- *second person actor, third person goal and first person goal when co-occurring with the free form demonstrative* uro *I*; ro- ~ r- *third person actor, first person individual goal*; o- ~ oy- *third person actor, second person goal*; nï- ~ O- *third person actor, third person goal, when there is no free form goal* or, *first person exclusive actor, second or third person goal, when co-occurring with the free form demonstrative* amna *we (exclusive)*; y- ~ O- *third person actor, third person goal, when there is also a free form goal.* Examples of these prefixes in transitive verbs are given in the description of the transitive tense-aspect margin.

The transitive base initial variant tagmeme (+/−Tr.BaseIn.Var.) occurs with a sub-class of transitive bases which have morpheme initial o. The o changes to *e*, but only when the base is preceded by transitive person margin prefixes w-, mï-, nï-. koño *I saw you* and weño *I saw him*; . . . yokno *he brought it* and wekno *I brought it*; oyonkotono *he painted you* and menkotono *you painted him.*

The base complement tagmeme (+/− BaseComp.) occurs immediately following the transitive base; it is identical with the base complement that occurs in the intransitive verb and has already been described in the section dealing with the intransitive verb. Examples of occurrence in the transitive verb are given in the description of the sub-class (b) suffixes which manifest the transitive tense-aspect margin.

The obligatory transitive tense-aspect margin tagmeme (+Tr.Ten-Asp.Mg.) occurs in word final with the meaning of the tense and aspect of the transitive action. It is manifested by a class of inflectional suffixes which are the same as those which manifest the intransitive tense-aspect margin subject to the following qualification: all suffixes containing a collective action marker have one of two referents when they occur in the transitive verb: (i) where the goal of the action is human the collective action suffix refers to that goal. There is an additional suffix in this category, -ïñe *collective goal of action*, which co-occurs with and follows the tense-aspect margin suffixes -sï *present tense, continuative aspect, first person individual actor* and -tano *immediate future tense involving motion to another location, first person actor.* waymomsïñe *I am driving them (people) in*; waymomtanïñe *I will go drive them in.* Examples of other tense-aspect margin suffixes which refer to collective human goal are kañekyace *I will call you all*; mempamnohcownï *you taught them*; ṫhananïhce *let us (two) teach them*; wehcowï *I brought them.* (ii) In all other cases the collective action suffix refers to the actor, just as it does in the intransitive verb: kacownï *they did it.* There is ambiguity when third person actor and goal are involved, e.g. neñace may mean one of four things: *they see it, they see them (i.e. things), he sees them (people)*, and *they see them (people)*. The transitive tense-aspect margin suffixes are divided into the same two sub-classes as the intransitive tense-aspect margin suffixes: sub-class (a), which immediately follow the transitive base and never co-occur with the base complement, and sub-class (b), which immediately follow the base complement and never occur without it. Examples of sub-class (a) in the transitive verb are weše *I am putting it down*; wehtano *I will go look for it*; tïkañe *let us (two) do it*; tïmce *let us all give it*; namomño *he rolled it up (immediate past)*; nanïmcowï *they raised it (immediate past)*; wencaye *I heard it (distant past)*; nakïhtocownï *they made it (distant past).* Sub-class (b): kosohtehe *I will name you*; nekyace *they will bring it*; wempamnohyako *I taught*

him (*recent past*); nařaco.ko *they took it* (*recent past*); mekaremeknano *you were telling it* (*recent continuative past*); mekaremeckenano *you all were telling it* (*recent continuative past*); rohananïhyakonï *he used to teach me* (*distant continuative past*); amna hananïhyackonï *we* (*exclusive*) *used to teach them*; oyotaheno *it may hit you*; (kïrï) yoskeno *will it bite* (*the man*)*?*; neñacowï *will they see it?* or, *will he see them* (*people*)*?*

The transitive declarative quotation report verb (V4) manifests the tagmeme +V×4H in the transitive declarative quotation report verb phrase. It occurs in the quotation type sentence with the meaning *to say*. Internal structure is the same as the V3 class already described, except that: (i) there is no base initial variant tagmeme, and (ii) the transitive quotation report base tagmeme (+Tr.Quot.Rep.Base), is manifested by a class which has only one member, -ka- *to say*.

The stative declarative verb (V5) manifests the tagmeme +V×5H in the stative declarative verb phrase. It has the meaning of *to be*, usually in some specified state which is expressed as the complement of the verb within the stative declarative type of sentence. Internal structure is shown above. It contrasts with other verb classes, except V10, in the class of stem which manifests the base tagmeme. It further contrasts with other verb classes in the class of prefixes which manifest the person margin tagmeme and in the class of suffixes which manifest the tense-aspect margin tagmeme. The internal structure is now described.

The obligatory stative base tagmeme (+St.Base) occurs in word medial and is manifested by a class which has only one member: -(ehš ∼ eh ∼ eš)- ∞ -ah- ∞ -O- *to be*. The allomorphs -eh- and -eš- occur only in the stative imperative verb but are included here so as to give a complete description of the stative base. Examples of the stative base as it occurs in the stative declarative verb: wehšaha *I am*; nahko *he was* (*immediate past*); manaye *are you?*.

The obligatory stative person margin tagmeme (+St.Pers.Mg.), occurs in word initial to designate the person of the subject of the stative verb. It is manifested by a class of inflectional prefixes: w- *first person, individual subject*; t- *first person inclusive*; man- ∞ m- *second person*; n- *third person* or, *first person exclusive when co-occurring with the free form demonstrative* amna *we* (*exclusive*). Examples of these prefixes in the stative verb are given in the description of the stative tense-aspect margin.

The stative base complement tagmeme (+/−St.BaseComp.) occurs immediately following the stative base. It is obligatory when the stative tense-aspect margin is manifested by members of sub-class (b) of the suffixes which manifest that tagmeme; it never occurs when the stative tense-aspect margin is manifested by members of sub-class (a). These sub-classes are described below and occurrence of the base complement is illustrated in the description of sub-class (b). The class manifesting the stative base complement has only one member: -a-.

The obligatory stative tense-aspect margin tagmeme (+St.Ten-Asp.Mg.) occurs in word final with the meaning of the tense and aspect of the state. It is manifested by a class of inflectional suffixes similar to, but not identical with, those which occur in the intransitive and transitive verbs, having the same two sub-classes, as indicated in the preceding paragraph. Members of sub-class (a) are -še *present tense, continuative aspect, first person individual subject*: wehše *I am*; -ñe *hortatory, first person inclusive* (*two only*): tehñe *let us be*; -ce *hortatory, first person inclusive* (*three or more*): tehce *let us all be*; -ko *immediate past tense, individual subject*: mahko *you were*; -coko *immediate past tense, collective subject*: nahcoko *they were*; -eye *distant past tense, completive aspect, individual subject*: tehšeye *we* (*incl.*) *were*; -cownï *distant past tense, completive aspect, collective subject*: nehcownï *they were*. Members of sub-class (b) are -ha *present or future*

tenses, individual subject: wehšaha *I am* or, *I will be*; -ce *present or future tenses, collective subject*: nace *they are* or, *they will be*; -ko, -co.ko, -knano, -ckenano, -konï, -ckonï are the same as already described under the intransitive verb: mehšako *you were* (*rec. past, complet.*); tehšaco.ko *we all were*; wehšaknano *I was* (*rec. past contin.*); nehšackenano *they were*; tehšakonï *we* (*two*) *were* (*dist. past contin.*); tehšackonï *we all were*; -no *future tense, uncertain aspect, first person subject only*: wehšano *I may be* or, *am I?*; -ye *future tense, uncertain aspect, second or third persons subject*: naye *he may be* or, *will he be?*

The intransitive imperative verb (V6) class manifests the tagmeme +V×6H in the intransitive imperative verb phrase. It has the meaning of command to action, other than motion, that is not directed toward a goal. Internal structure is shown in above. It contrasts with other verb classes, except VI, in the class of stems which manifest the base tagmeme. It further contrasts with other verb classes, except V7, in the class of prefixes which manifest the imperative person margin and in the class of suffixes which manifest the imperative action margin. The internal structure is now described.

The obligatory intransitive base tagmeme (+Intr.Base) is as described under the intransitive declarative verb. In the imperative intransitive verb, however, there are two sub-classes: (i) those which are preceded by the imperative person margin, and (ii) those which are never preceded by that tagmeme, but always occur word initially. Examples of sub-class (i) are: -haka- *to wake up* as in ahakako *wake up*; -amarek- *to hunt* as in ayamarehca *go hunt*. Examples of sub-class (ii) are: emtakma- *to take a meal*, as in emtakmaca *go take a meal*; asanïm- *to stand up*, as in asanïmko *stand up*.

The imperative person margin tagmeme (+/−Imp.Pers.Mg.) occurs in word initial with the meaning of second person, to whom the command to action is made. It only occurs preceding members of sub-class (i) of the stems which manifest the intransitive base, as described in the preceding paragraph. It is manifested by a class with only one member o- ∞ ow- *second person imperative*: orwonïmko *talk*; ownïhko *sleep*; amanhoco.ko *everybody dance*.

The obligatory intransitive imperative action margin tagmeme (+Intr.Imp.Act. Mg.) occurs in word final with the meaning of command to the action. It is manifested by a small class of suffixes -ko *imperative action addressed to an individual*, amanhoko *dance*; -co.ko *imperative action addressed to a group*, awano.taco.ko *everybody sing*; -ta *imperative action addressed to an individual, involving motion to another location*, ayamarehca *go hunt*; -tacko *imperative action addressed to a group, involving motion to another location*, ownïhtacko *everybody go sleep*.

The intransitive imperative motion verb (V7) class manifests the tagmeme +V×7H in the intransitive imperative motion verb phrase. It has the meaning of command to intransitive action involving motion. Internal structure is the same as the V6 class already described except for the base tagmeme; intransitive motion base has been described under the V2 class. Examples of intransitive imperative motion verbs are: toko *go*; omohco.ko *everybody come*.

The transitive imperative verb (V8) class manifests the tagmeme +V×8H in the transitive imperative verb phrase. It has the meaning of command to action that is directed toward a goal. Internal structure is shown above. It contrasts with other verb classes, except V3, in the class of stems which manifest the base tagmeme. It further contrasts with all other verb classes in the transitive base introducer tagmeme, which occurs in word initial preceding certain stems that manifest the base tagmeme. It also contrasts with all except V9 in the class of suffixes which manifest the imperative

action margin. The internal structure is now described.

The obligatory transitive base tagmeme (+Tr.Base) is as described under the transitive declarative verb; in the transitive imperative verb, however, there are two subclasses: (i) those which are preceded by the transitive base introducer, and (ii) those which are never preceded by that tagmeme, but always occur word initially. Examples of sub-class (i) are given in the next paragraph; examples of sub-class (ii) are -onca- *to hear*; -ompamnoh- *to teach*; -ïh- *to grate*.

The transitive base introducer tagmeme (+/−Tr.BaseIntro.) occurs in word initial preceding members of sub-class (i) of the stems which manifest the transitive base; it never occurs with sub-class (ii) stems. It is manifested by a class with only one member: (t- ∼ c- ∼ š-) ∞ s-, t- + -ïm- *to give* > tïmko *give it*; c- + -e- *to put down* > cerko *put it down*; š- + -one- *to see* > šenko *look at it*; s- + -ok- *to bring* > sohko *bring it*. This transitive base introducer also occurs in certain forms of words (nouns, attributives, time words, *q.v.*) which are derived from these subclass (i) transitive stems.

The obligatory transitive imperative action margin tagmeme (+Tr.Imp.Act.Mg.) occurs in word final with the meaning of command to the action. It is manifested by the same class of suffixes as the intransitive imperative action margin, subject to the same qualification as applies in the case of the tense-aspect margin in the transitive declarative verb, i.e. collective action markers have one of two referents depending on whether the goal of the action is human or not. Examples of these suffixes in the transitive imperative verb are: arko *take it*; encaco.ko *everybody hear it*; wakaca *go pull it out*; tonotacko *everybody go eat it*.

The transitive imperative quotation report verb (V9) class manifests the tagmeme +V×9H in the transitive imperative quotation report verb phrase. It has the meaning of command to say something. Internal structure is the same as the V8 class, except that: (i) there is no base introducer tagmeme, and (ii) the quotation report base tagmeme is manifested by a class which has only one member, as described under the transitive declarative quotation report verb (V4). Examples of the transitive imperative quotation report verb are: kasko *say it*; kaco.ko *everybody say it*; kaca *go say it*.

The stative imperative verb (V10) class manifests the tagmeme +V×10H in the stative imperative verb phrase. It has the meaning of command to be in some specified state that is expressed as the complement of the verb within the stative imperative clause. Internal structure is shown above. The obligatory stative base tagmeme (St.Base) occurs in word initial and is manifested by the same class as already described under the stative declarative verb, though only the allomorphs eh- ∼ eš- occur in the imperative verb. The obligatory stative imperative margin tagmeme (+St.Imp.Mg.) occurs in word final and is manifested by a class of suffixes containing only two members: -ko and -co.ko, already described under the intransitive imperative verb. There are only two forms of the stative imperative verb: eško *be* and ehco.ko *everybody be*.

1.2. The noun hyperclass consists of four classes of nouns: 1. general, 2. double function interrogative, 3. demonstrative, 4. personal. This classification is based primarily on external distribution features. The classes are grouped together as one hyperclass because they overlap in the slots which they fill at higher levels of structure. They are distinct classes because each one fills at least one higher level slot which none of the other classes fills. There are also distinctions in internal structure: in the general class there are possessed and non-possessed sub-classes and the possessed have special possession markers; there are also derived and non-derived sub-classes and the derived are marked by special stems and suffixes; the double function interrogative and demonstrative classes are non-

possessed and are not marked in any way; the personal class consists only of certain members of classes 1 and 3. There is also one internal feature which binds the four classes together as one hyperclass: occurrence in word final of the suffix- tho ∞ -nho ∞ -thïrï ∞ -nhïrï *passage of time, implying age, loss of value, former existence, or simply past tense of the action in which the noun is involved.* This suffix may occur with any member of any class of nouns.

The subdivision of the general noun class and the tagmemic formulas representing the internal structure of each sub-class are shown below.

A. Obligatorily possessed: 1. simple = +Possr. Mg. +Possd. Stem (A1) + Possn. Mg.; 2. derived from intransitive verb base = + Possr. Mg. + Possd. Stem (A2) +Deriv.Mg.(A); 3. derived from intransitive motion verb base = +Possr.Mg. +Possd.Stem(A3) +Deriv.Mg.(A); 4. derived from transitive verb base = +Possr.Mg. +Possd.Stem(A4) +Deriv. Mg.(A_t); 5. derived from stative verb base = +Possr.Mg. +Possd.Stem(A5) +Deriv.Mg.(A)

B. Optionally possessed = ±Possr.Mg. +Possd.Stem(B) ±Possn.Mg.

C. Obligatorily non-possessed: 1. simple = +Non-Possd.Item(C1); 2. derived = +Non-Possd.Stem(C2) +Deriv.Mg.(C).

The general noun (N1) class manifests the tagmeme +Nx1H in the general noun phrase. Sub-classes A1, B, and C1 manifest the tagmeme ±Possr. in any possession phrase (it is possible that some or all of the other sub-classes of N1 also manifest the tagmeme ±Possr. but no occurrences have been recorded to date). Sub-class A1 manifests the tagmeme +It.Possd. in the simple possession phrase; A2 manifests +Intr. Act.Possd. in the intransitive action possession phrase; A3 manifests +Intr. Mot.Possd. in the intransitive motion possession phrase; A4 manifests +Tr.Act. Possd. in the transitive action possession phrase; A5 manifests +St.Possd. in the stative possession phrase. Sub-class B, when actually possessed, manifests the tagmeme +It.Possd. in the simple possession phrase. The internal structure of these sub-classes of the general noun class is now described.

Sub-class A1 has three obligatory tagmemes. The obligatory possessor margin tagmeme (+Possr.Mg.) occurs in word initial with the meaning of pronominal referent to the possessor of the item. It is manifested by a class of inflectional prefixes: ro- ∼ r- *first person individual*; kï:- *first person inclusive;* 0-∞ ow- *second person*; ï- ∼ u- ∼ O- ∼ (stem initial o changes to e) *third person other than when*: (*i*) *preceded by a free form possessor, and* (*ii*) *the possessor refers to the same person as the actor referent in the accompanying verb*; y- ∼ O- *third person when preceded by a free form possessor in a possession phrase* or, *first person exclusive when it co-occurs with the free form demonstrative* amna *we* (*exclusive*); tï- *third person when referring to the same person as the actor referent in the accompanying verb.* The obligatory, possessed stem tagmeme (A1) occurs in word medial with the meaning of the item that is obligatorily possessed. It is manifested by a class of bound stems which include all body parts and certain other items which are inalienably possessed, -owa- *breast*, -ïhro- *foot*, -amo- *hand*, -he- *wife*, -mï- *house*, -ok- *pet*. The obligatory possession margin tagmeme (+Possn.Mg.) occurs in word final with the meaning of possession marker. It is manifested by a class which has only one member: -rï ∞ -nï ∞ -tï ∞ -ce. Examples of the A1 class of nouns are: romïnï *my house*, rahonï *my arm*, kïyhorï *our* (*inclusive*) *manioc plantation*, kowanï *our* (*inclusive*) *breasts*, oyuhuthuru *your head*, owotï *your meat food*, ïhanarï *his ear*, uhuchuru *his skin*, ïkpoce *his hair*, mïnï *his house*, ewanï *his breast*, meku yerenï *the monkey's liver*, kïrï mïnï *the man's house*, amna yoknï *our* (*exclusive*) *pet*, tïyehre yaŕako *he carried his own weapon.*

The four sub-classes of obligatorily possessed derived nouns (A2, A3, A4, and A5)

will be treated together in this description since they have so many features in common. The obligatory possessor margin tagmeme (+Possr.Mg.) has already been described under the A1 sub-class. The following restrictions apply as to the meaning of the possessor referent: (i) in the A2 and A3 subclasses the referent is the doer of the action contained in the intransitive verb base; (ii) in the A4 sub-class the referent is the goal of the action contained in the transitive verb base; (iii) in the A5 sub-class the referent is the subject of the state expressed by the stative verb base. The obligatory possessed stem tagmemes. (+Possd.Stem (A2), +Possd.Stem(A3), etc.) are manifested by the different classes of verb bases: in A2 by the intransitive base, in A3 by the intransitive motion base, in A4 by the transitive base, and in A5 by the stative base. The obligatory derivational margin tagmeme, (+Deriv.Mg.(A) and +Deriv.Mg.(A_t)) occurs word finally with the meaning of some sort of nominalization in relation to the action expressed in the verb base which manifests the possessed stem tagmeme. +Deriv.Mg.(A) is manifested by a small class of five suffixes; +Deriv.Mg.(A_t) is manifested by a class which contains the same five suffixes and has also three others. These derivational suffixes are now listed and described.

1) -nïrï *simple nominalization of the action contained in the verb base.* ramareknïrï [r-amarek(A2 base)-nïrï] *my hunting;* otonïrï [o-to(A3 base)- -nïrï] *your going*; koskanïrï [k-oska(A4 base)-nïrï] *our being bitten;* oyehnïrï [oy-eh(A5 base)-nïrï] *your being.*

2. -hïtorï *nominalization of the negation of action contained in the verb base.* oyekayïmpïtorï [oy-ekayïm(A2 base)-pïtorï] *your not climbing;* rotohtorï [ro-to(A3 base)-htorï] *my not going;* kukmahtorï [O-kukma(A4 base) -htorï] *its not being tasted.* There is no recorded example of this suffix with the A5 base.

3. -toho ∞ -tho *instrument or time relating to the action contained in the verb base.* ayamarehcoho [ay-amareh(A2 base)-coho] *time for your hunting*; ehurkacoho [O-ehurka(A2 base)-coho] *the thing that falls (e.g. waterfall)*; omohtoho [O-omoh(A3 base)-toho] *time of his coming*; amacho [O-ama(A4 base)-cho] *the thing that cuts it (e.g. axe)*; kehcoho [k-eh(A5 base)-coho] *time of our being.*

4. -hïyemï *associate in the action contained in the verb base.* rorwonïmpïyemï [ro-ïrwonïm(A2 base)-pïyemï] *one who talks with me;* tohyemï [O-to(A3 base)-hyemï] *one who goes with him*; kahyemï (rowya) [O-ka(A4 base)-hyemï] *one who does it (with me).* There is no recorded example of this suffix with the A5 base.

5. -cetï *payment for the action contained in the verb base.* ramarekïcetï [r-amarekï(A2 base)-cetï] *payment for my hunting;* rompamnohocetï [r-ompamnoho(A4 base)-cetï] *payment for teaching me.* There are no recorded examples of this suffix with the A3 and A5 bases.

The above suffixes manifest both the +Deriv.Mg.(A) and +Deriv.Mg.(A_t) tagmemes. The following three suffixes manifest only the +Deriv.Mg.(A_t) tagmeme:

6. -ñe *doer of action that is directed toward a goal.* kohcemañe [k-ohcema-ñe] *the one who treats us with medicine*; twoñe [O-two-ñe] *the one who shoots it.*

7. -n- . . . -rï (. . . represents the position of occurrence of the possessed stem tagmeme) *object which results from action that is directed toward a goal.* ronïmrï [ro-n-ïm-rï] *the thing I give (i.e. my gift)*; knekïthïrï [k-n-ekï-thïrï(past tense marker merging with derivational suffix)] *the thing that we brought.*

8. -n . . . -hïtorï *object which results from the negation of action that is directed toward a goal.* onïmpïtorï [o-n-ïm-pïtorï] *the thing you will not give;* ronarhohtorï [ro-n-arho-htorï] *the thing I do not send.*

Sub-class B of the general noun class has one obligatory and two optional tagmemes. It contrasts with the A1 sub-class in that the possessed stem (B) tagmeme may occur alone without either of the two margins.

This tagmeme is manifested by a class of non-derived nouns: kanawa *canoe*, mareya *knife*, wosï *woman*. The optional tagmemes, possessor margin (±Possr.Mg.) and possession margin (±Possn.Mg.), are manifested by the same classes as the corresponding obligatory tagmemes which occur in the A1 sub-class. Examples of sub-class B nouns with the margins are: akanawarï *your canoe*, mareyanï *his knife*, rowosïnï *my woman relation*. When the optionally possessed noun occurs with the possessor and possession margins both margins are obligatory.

Sub-class C1 has only one tagmeme, obligatory non-possessed item (+Non-Possd.Item(C1)). It is manifested by a class of non-possessed, non-derived nouns which include names of plants, animals, persons, and natural phenomena; hakña *peccary*, hoñe *piranha*, kyokyo *parrot*, wewe *tree, wood*, saraho *manioc plant*, kaywere *name of man*, kamïmï *sun*, tuna *water*.

Sub-Class C2 has two obligatory tagmemes. The obligatory non-possessed stem tagmeme (C2) (+Non-Possd.Stem(C2)), occurs in word initial and is manifested by a class of stems which includes all types of verb bases, certain nouns and noun stems, attributives, locatives, time words and noun orienter phrases. The members of this class are described in detail below. The obligatory derivational margin (C) tagmeme (+Deriv. Mg.(C)) occurs in word final and is manifested by a small class of derivational suffixes. There are co-occurrence restrictions between members of the stem class and members of the suffix class. These are stated in the description which follows but are not used as criteria for separate classification since there are no corresponding differences in external distribution of these nouns. These derivational suffixes are now listed and described.

1. -saho *doer of a past action not directed toward a goal* or, *object resulting from a past action directed toward a goal* or, *subject of a past state*. The type of stem with which it co-occurs is restricted to verb bases. manhosaho *the one who danced*; amašaho *the thing that was cut;* ehšaho *the thing that was*.

2. šeñeno *object resulting from a recent action*. The type of stem with which it co-occurs is restricted to transitive verb base. tïmšeñeno *a newly given one*; sohšeñeno *a newly brought one*.

3. -mï *nominalization of an attributive*. The type of stem with which it co-occurs is restricted to attributives which are marked by the attributivizing prefix tï-. teñahkemï *one who is in possession of food*; tïrwoñemï *one that talks* (*e.g. tape recorder*); tokatohořemï *one having a good spirit*; tyokemï *sharp one*.

4. -no *simple nominalization*. It co-occurs with the following stems: (i) intransitive verb base, asanïmno *thing that is raised up* (*e.g. river bank*); oserehno *fear*; (ii) certain attributives (other than those which are marked by the prefix tï-), osekno *one thus*; ïywerono *one who knows*; towenešano *one thing*; (iii) certain locatives, tanono *one belonging here*; ïtono *the one there*; (iv) certain time words, amñehrano *one of a long time ago*; (v) certain noun orienter phrases; in this case the stem is filled by a higher level structure, i.e. the phrase. For convenience in writing, the suffix -no is added to the final word of the phrase, i.e. the orienter, but it relates to the whole phrase; e.g. location oriented phrase: toto wawono *the person, the one with*; kamara hokono *the jaguar, the one concerned with*; manner oriented phrase: noro yano meno *he, his help, the one with* (*the one who has his help*); attraction oriented phrase: anhï šano *evil, the one attracted by* (*the one who likes evil*).

5. -hïnï *one who does not perform or suffer an action* (*with verb bases*) or, *one who does not have an object or quality* (*with nouns*). It co-occurs with the following stems: (i) intransitive verb base, emokotohnï *one that does not fall*; tohnï *one that does not go*; (ii) transitive verb base, etahurmakahnï *one that is not opened*; enahpïnï *one that is not eaten*; (iii) general noun, sub-class A4, with derivational suffix -ñe, eñhořeñehnï *one who*

does not make it good; šeñehnï *one who does not see it*; (iv) general noun, sub-class C2, with derivational suffix -no, yakenohnï *one who does not have much*; oskenohnï *one that is not thus*; anhï šanhïnï *one who does not like evil.*

6. -nano *de-possession of an item normally possessed.* It co-occurs with members of the class which manifests the possessed stem tagmeme (A1), in the general noun, sub-class A1. ïkponano *hair*; ahonano *arm* or, *seat*; woknano *drinking vessel.*

The double function interrogative noun (N2) class manifests the tagmeme +N×2H in the double function interrogative noun phrase. It consists of a small number of interrogative nouns which are divided into two sub-classes: (i) non-derived: nokï *who?, what?*, tenï *what?*; (ii) derived, consisting of stem plus the derivational suffix -no; the stem class consists of certain double function interrogatives which do not belong to the noun class: sokeno *the one how?*; twahakeno *the ones how many?* (in both of these the stem is an attributive); hentano *the one from where?* (stem is a locative).

The demonstrative noun (N3) class manifests the tagmeme +N×3H in the demonstrative noun phrase. It consists of a small number of demonstratives and pronouns, all of which are non-derived. uro *I*; omñamo *you all*; mosonï *that one (person), very near*; mokro *that one (person), further away but still in sight*; onï *this one here.*

The personal noun (N4) class manifests the tagmeme +N×4H in the personal noun phrase. It overlaps noun classes 1 and 3 and consists of any general or demonstrative noun which refers to a person. horekomo *chief man*; pepe *older brother*; kaywere *name of a man*; noro *he.*

Attributive classes, sub-classes and tagmemic formulas for derived or possessed words are given below.

A1. General: (a) simple; (b) derived affirmation: (i) noun stems = +Az.Mg. +A.Stem$_1$ +A. Deriv.Mg.$_1$, (ii) non-attributive stems = +Az.Mg. +A.Stem$_2$ +A.Deriv.Mg.$_2$; (c) derived negation: (i) attributive stems = +A.Stem$_3$ +A.Deriv.Mg.$_3$, (ii) noun stems = +A.Stem$_4$ +A.Deriv.Mg.$_4$.

A2. Double function interrogative.

A3. Action focussed: (a) obligatorily possessed = +Possr.Mg. +A.Stem$_5$ +A. Deriv.Mg.$_5$; (b) obligatorily non-possessed = +/−Az.Mg. +A.Stem$_6$ +A.Deriv.Mg.$_6$.

A4. Motion modifier: (a) simple; (b) concurrent action = +Az.Mg. +A.Stem$_6$ +A.Deriv.Mg.$_7$; (c) purposed action: (i) obligatorily possessed = +Possr.Mg. +A. Stem$_5$ +A.Deriv.Mg.$_7$, (ii) obligatorily non-possessed = +A.Stem$_6$ +A.Deriv. Mg.$_7$.

A5. Quantitative.

A6. Postpositional orienter = ±Possr. Mg. +Or.

A7. Postpositional modifier.

1.3. The attributive hyperclass consists of seven classes of attributives; three of these classes are divided into sub-classes on the basis of features of derivation and possession which affect either external distribution or internal structure, or both. These classes and sub-classes, with formulas where applicable, are shown above. The classes are not so closely related to each other as is the case within the verb and noun hyperclasses, but they are united into one hyperclass because of the following features which they have in common: (i) the first five classes fill similar slots at the sentence level (manner, motion modification and stative complement slots) with some overlap of fillers; (ii) the last two classes are postpositions which orient or modify the head word of a phrase; (iii) class A6 is linked with classes A3 and A4 by the internal feature of the possessor margin; (iv) classes A1, A3 and A4 have sub-classes which are linked together by the internal feature of the attributivizing margin and by the fact that nouns may be formed from them by adding the derivational suffix -mï; (v) classes 1, 2, 5, and 6 have members from which nouns may be formed by adding the derivational suffix -no.

The general attributive (A1) class mani-

fests the tagmeme +A×1H in the general attributive phrase. It is divided into three sub-classes on the basis of internal structural features.

Sub-class (a) consists of descriptive words which are non-derived, non-possessed and have no internal markers of any kind, acke *bad*, ohše *good*, kare *high*, hotaharo *full*.

Sub-class (b) consists of derived words which affirm an attribute or state of some kind. They are sub-divided into two groups according to the classes which manifest the stems and derivational margins. In both groups there is an obligatory tagmeme, attributivizing margin (+Az.Mg.), which occurs in word initial with the meaning of attributive marker. It is manifested by a class with only one member: tï-. In group (i) the obligatory tagmeme, attributive stem 1 (+A.Stem$_1$), occurs in word medial and is manifested by a class of noun stems, -otï *meat food*, -yo- *tooth*, -onu- *eye*. In the same group the obligatory tagmeme, attributive derivational margin 1 (+A.Deriv. Mg.$_1$), occurs in word final with the meaning of possessing the item contained in the stem. It is manifested by a class with only one member: -ke. Examples of group (i) attributives are: totke *possessing meat food;* tyoke *possessing teeth* (*i.e. sharp*); tonke *possessing eyes* (*i.e. awake*). In group (ii) the obligatory tagmeme, attributive stem 2 (+A.Stem$_2$), occurs in word medial and is manifested by a class of non-attributive stems. The obligatory tagmeme, attributive derivational margin 2 (+A.Deriv.Mg.$_2$), occurs in word final with the meaning of describing a state. It is manifested by a class with only one member: -ñe∞ -še∞ -ře∞ -ye. Examples of group (ii) attributives are: takyuñe *warm*; tmataše *rotten*; tukře *wet*; tïhye *being with a wife*.

Sub-class (c) consists of derived words which express the absence of an attribute or an item. They are sub-divided into two groups according to the classes which manifest the stems and derivational margins. In group (i) the obligatory tagmeme, attributive stem 3 (+A.Stem$_3$), occurs in word initial and is manifested by a class of stems which comprises A1.(a) attributives and the stems of A1.(b) attributives. The obligatory tagmeme, attributive derivational margin 3 (+A.Deriv.Mg.$_3$), occurs in word final with the meaning of absence of an attribute. It is manifested by a class with only one member: -hïra. Examples of A1.(c)(i) attributives are: ohšehra *not good*; yohra *not sharp*; ewaš hïra *not strong*. In group (ii) the obligatory tagmeme, attributive stem 4 (+A.Stem$_4$), occurs in word initial and is manifested by a class of noun stems. The obligatory tagmeme, attributive derivational margin 4 (+A.Deriv.Mg.$_4$), occurs in word final with the meaning of absence of an item. It is manifested by a class with only one member: -mra. Examples of A1.(c)(ii) attributives are: atumra *not having fever*; ïrwomra *not having speech* (*i.e. dumb*); ahomra *not having earth*.

The double function interrogative attributive (A2) class manifests the tagmeme +A×2H in the double function interrogative attributive phrase. It consists of a small number of interrogative attributives: soke *how?*; twahake *how many?* The latter has the formal characteristics of a derived general attributive but the classification and meaning of the stem (-waha-) is obscure

The action focussed attributive (A3) class manifests the tagmeme +A×3H in the action focussed attributive phrase. It is divided into two subclasses on the basis of internal structure and additional distributional characteristics of one of the subclasses.

Sub-class (a) consists of derived words which are also obligatorily possessed. They express some sort of state which is focussed on action directed toward a goal. The obligatory possessor margin tagmeme, (+Possr. Mg.) occurs in word initial with the meaning of pronominal referent to the possessor of the state. It is manifested by the same class of inflectional prefixes as the possessor margin in the general noun sub-classes A and B. The obligatory tagmeme, attributive stem 5

(+A.Stem$_5$), occurs in word medial with the meaning of action in focus. It is manifested by transitive verb bases. The obligatory tagmeme, attributive derivational margin 5 (A.Deriv.Mg.$_5$), occurs in word final with the meaning of state. It is manifested by a small class of three derivational suffixes:

1. -cahke *state of desiring*, rowakrecahke [r-owakre-cahke] *desiring my being made happy*; (orenï) yïmcahke [y-ïm-cahke] (*the pan*) *desiring the giving of it.*

2. -cakomra *state of not desiring*, oyoncakomra [oy-one-cakomra] *not desiring the seeing of you*; tïmcakomra [O-tïm-cakomra] *not desiring the giving of it.*

3. -hïra *simple negative state*, ayahoshïra [ay-ahos-hïra] *not throwing you*; rompamnohpïra [r-ompamnoh-pïra] *not teaching me.*

Sub-class (a) has the additional distributional feature of manifesting the tagmeme +A.Possd.(Act.Foc.) in the attributive possession 1 phrase. Sub-class (b) consists of derived words which are obligatorily non-possessed. They express some sort of state which is focussed on action not directed toward a goal. The attributivizing margin tagmeme, (+/−Az.Mg.) occurs in word initial with the meaning of attributive marker. It is manifested by a class with only one member: tï- (see also A1(b) and A4(b) attributives). It has the restriction that it never co-occurs with two members of the class of suffixes which manifest the derivational margin 6; -cakomra and -hïra; it is obligatory elsewhere. The obligatory tagmeme, attributive stem 6 (+A.Stem$_6$), occurs in word medial (in word initial with the suffixes -cakomra and -hïra) with the meaning of intransitive action in focus. It is manifested by intransitive verb bases (the stative verb base has also been found to occur but only with the derivational suffix -hïra). The obligatory tagmeme, attributive derivational margin 6 (+A.Deriv.Mg.$_6$), occurs in word final with the meaning of state. It is manifested by a small class of derivational suffixes which include the three already described under A3.(a); examples of these three suffixes in the obligatorily non-possessed action focussed attributive are: tïtocahke [tï-to-cahke] *desiring to go*; ïrwomcakomra [ïrwom-cakomra] *not desiring to talk*; esahra [esa-hra] *not stopping*; there are two additional suffixes in this class:

4. -hoře *state of fitness or readiness*, tomokhoře [t-omok-hoře] *ready to come.*

5. -hořhera *state of unfitness or unreadiness*, tmanhohořhera [t-manho-hořhera] *not good to dance.*

The motion modifier attributive (A4) class manifests the tagmeme +A×4H in the motion modifier attributive phrase. It is divided into three sub-classes on the basis of internal structural features; the last of these sub-classes is further sub-divided into two groups on the basis of internal structure and additional distributional characteristics of one of the groups.

Sub-class (a) consists of modifiers which are non-derived, non-possessed and have no internal markers of any kind: wahoro *leading*; wa.raro *alongside the river*; wenaře *following*; mahoře *by land.*

Sub-class (b) consists of derived words which express action that is concurrent with motion. The obligatory attributivizing margin tagmeme (+Az.Mg.) occurs in word initial and is the same as that which occurs in the sub-class A1.(b). The obligatory tagmeme, attributive stem 6 (+A.Stem$_6$), occurs in word medial and is the same as that which occurs in sub-class A3(b). The obligatory tagmeme, attributive derivational margin 7 (+A.Deriv.Mg.$_7$), occurs in word final. It is manifested by a class with only one member: -so∼-še *motion modifier marker.* tmanhoso *dancing*; tamarehše *hunting*; tïtahrumso *jumping.*

Sub-class (c) consists of derived words which express action that is the purpose of motion; group (i) consists of obligatorily possessed words and has the additional distributional feature of manifesting the tagmeme +A.Possd.(Act.Pur.) in the attributive possession 2 phrase; group (ii) consists

of obligatorily non-possessed words. In group (i) the obligatory possessor margin tagmeme (+Possr.Mg.) occurs in word initial and is the same as that which occurs in the general noun sub-classes A and B and in the action focussed attributive sub-class (a). The obligatory tagmeme, attributive stem 5 (+A.Stem$_5$), occurs in word medial and is the same as that which occurs in the action focussed attributive sub-class (a). The obligatory tagmeme, attributive derivational margin 7 (+A.Deriv.Mg.$_7$), occurs in word final and is the same as that which occurs in the motion modifier attributive sub-class (b). Examples of group (i) are: ayañehše [ay-añeh-še] *purposing the calling of you*; (hawše) yonoso [y-ono-so] *purposing the eating of* (*wild turkey*); rompamnohso [r-ompamnoh-so] *purposing the teaching of me*. In group (ii) the obligatory tagmeme, attributive stem 6 (+A.Stem$_6$), occurs in word initial and is the same as that which occurs in the action focussed attributive sub-class (b) and in the motion modifier attributive sub-class (b). The obligatory tagmeme, attributive derivational margin 7 (+A.Deriv.Mg.$_7$), occurs in word final and is the same as that which occurs in the motion modifier attributive sub-classes (b) and (c)(i). Examples of group (ii) are: owomso [owom-so] *purposing entering*; ewehso [eweh-so] *purposing taking a bath*; wano.taše [wano.ta-še] *purposing singing*.

The quantitative attributive (A5) class manifests the following tagmemes: ±*M*— sentence satellite tagmeme; +Qn. in the quantitative phrase; it has also been recorded once as manifesting the tagmeme ±Possr. in the simple noun possession phrase. It consists of a small number of numerals: toweneša *one*; asako *two*; osorowawo *three;* the only other numerals which have been recorded are *four*, *five* and *ten*, but these are very rarely used.

The postpositional orienter attributive (A6) class manifests the orienter tagmemes in the oriented noun phrases. There are five sub-groupings each of which occurs in a different type of noun phrase: (i) location orienters manifest the tagmeme +Loc.Or. in the location oriented noun phrase; they have the meaning of location, direction or other such relation to the item which is in focus in the phrase. ho *at*, hona *towards*, hoko *concerning*, yaka *to*, *into*, wawo *among*, *with*. (ii) Manner orienters manifest the tagmeme +Man.Or. in the manner oriented noun phrase; they have the general meaning of attributivizing the item which is in focus in the phrase. me *simple attributivizer*, uyaro *like in appearance*, uyarohra *unlike in appearance*, akoro *with, accompanying*. (iii) Attraction orienters manifest the tagmeme +Att.Or. in the attraction oriented noun phrase; there are only two members: še *attracted by, wanting, loving*, šehra *not attracted by, etc.* (iv) Causation orienter manifests the tagmeme +Caus.Or. in the causation oriented noun phrase; there is only one member: ke *because of, by means of*. (v) Referent orienter manifests the tagmeme +Ref.Or. in the referent oriented noun phrase; there is only one member; ïwya *to, by*. The optional tagmeme, possessor margin (±Possr.Mg.), occurs in word initial with the meaning of pronominal referent to the person in focus. It is manifested by the same class of inflectional prefixes as the possessor margin in the general noun sub-classes A and B, but the prefixes y- and tï- have not been found to occur in the orienter words. The possessor prefix replaces the item in focus in the phrase and never occurs where there is a free form phrase focus tagmeme. khoko *concerning us*, ïhyake *to him*, rowya *to* (*or*, *by*) *me*, oše *attracted by you*.

The postpositional modifier attributive (A7) class manifests the follow-phrase satellite tagmemes: ±N×.Mg.1 in noun phrases; ± V×. Mg.1 in verb phrases; ±Ax.Mg.1 in attributive phrases; ±L×. Mg.1 in locative phrases; ±T×.Mg.1 in time phrases; ±Poss.×.Mg.1 in possession phrases. It consists of a small number of modifiers: komo *collective, group*; heno

many; ymo *augmentative (often with the connotation of something bad and to be feared);* cko *diminutive (often with the connotation of something good and to be liked).*

1.4. The locative hyperclass consists of two small classes of locative words: 1. general 2. double function interrogative. All locative words are non-derived, non-possessed and have no internal markers.

The general locative (L1) class manifests the tagmeme +L×.1H in the general locative phrase. It consists of a small number of locative or directional words: tano *here;* šaro *to here;* ïto *there(near);* moyoro *there (more distant).*

The double function interrogative locative (L2) class manifests the tagmeme +L×2H in the double function interrogative locative phrase. It has only one member: henta *where?*

1.5. The time hyperclass consists of two classes of time words: 1. general 2. double function interrogative.

The general time (T1) class manifests the tagmeme +T×1H in the general time phrase. It is divided into two sub-classes on the basis of internal structure and additional distributional features of one of the subclasses.

Sub-class (a) consists of time words which are non-derived, non-possessed and have no internal markers of any kind: amñe *soon;* amñerma *now, to-day;* awanaworo *to-morrow.*

Sub-class (b) consists of time words which are derived from verb bases and are also obligatorily possessed. It is sub-divided into four groups according to the type of verb base which manifests the stem tagmeme and each of these groups has the additional distributional feature of occurrence in a different type of time possession phrase. These four groups correspond to the general noun sub-classes A2, A3, A4, and A5. They have three tagmemes, all of which are obligatory. The obligatory possessor margin tagmeme is the same in all four groups and is identical with the possessor margin in the corresponding general noun sub-classes. The obligatory time possessed stem tagmeme is manifested by the different classes of verb bases: in group (i) by the intransitive base; in group (ii) by the intransitive motion base; in group (iii) by the transitive base; and in group (iv) by the stative base; these also are identical with the possessed stems in the corresponding general noun sub-classes. The obligatory time derivational margin tagmeme has the meaning of temporal conditioning of the action and is manifested by a class with two members: -nïtoko *contemporary conditioning of the action* and -che *post-conditioning of the action.* Examples of sub-class (b) time words are: (i) rewehnïtoko [r-eweh-nïtoko] *when my taking a bath;* remtakmache [r-emtakma-che] *after my taking a meal;* (ii) otontoko [o-to-ntoko] *when your going;* toche [O-to-che] *after his going;* (iii) oyompamnohontoko [oy-ompamnoh-ontoko] *when your being taught;* twoche [O-two-che] *after its being shot;* (iv) ehtoko (O-eh-toko] *when its being;* rešeche [r-eš-eche] *after my being.*

The double function interrogative time (T2) class manifests the tagmeme +T×2H in the double function interrogative time phrase. It has only one member: sokentoko *when?* This is a derived word with two obligatory tagmemes, stem and derivational margin. The stem is manifested by the double function interrogative attributive, *soke,* and the margin by *-nïtoko.*

1.6. The particle hyperclass consists of five classes of particles: 1. Ideophone 2. Exclamation 3. Response 4. Vocative 5. Modal. Each class manifests a different higher level tagmeme. They are grouped together into one hyperclass on the basis of their common internal structuring; they are non-derived and non-possessed words, frequently of one syllable, which is rare in any other type of word.

The ideophone particle (Pt. 1) class manifests the tagmeme +Ideo.×.H in the ideophone phrase. It is a relatively large class of words which are used to express actions. The action may be expressed by the

ideophone alone, or by a regularly inflected verb, or by both the ideophone and verb in the same higher level construction. kmo. *act of falling into hammock to sleep*; pe.y *act of shooting with bow or gun*; fuhto *act of falling down to die (an animal)*; šek *act of washing clothes*; šwaš *act of pulling out.*

The exclamation particle (Pt. 2) class manifests the tagmeme +Exc. in the exclamation type of sentence. Only one doubtful example has been recorded (it may prove to be an ideophone): knu *exclamation of delight or pleasure.*

The response particle (Pt. 3) class manifests the tagmeme +Res. in the response type of sentence. It is a small class of response words: na. *all right*; na.hana *I don't know*; ï.na *yes.*

The vocative particle (Pt. 4) class manifests the tagmeme +Voc.Or. in the vocative phrase. It has only one member: ye *vocative marker.*

The modal particle (Pt. 5) class manifests the following phrase satellite tagmemes: ±N×.Mg.2 in noun phrases; ±V×.Mg.2 in verb phrases; ±A×.Mg.2 in attributive phrases; ±L×.Mg.2 in locative phrases; ±T×.Mg.2 in time phrases; ±Poss.×.Mg.2 in possession phrases; ±Ideo.Mg. in ideophone phrases. It is a relatively large class whose members occur frequently in phrases. ha (*occurs very frequently with little meaning, probably best defined as a phrase rhythm word*); makï *but, only* (*expresses restriction or limitation*); šarha *also, again* (*expresses repetition*); rma *yet, still*; mï *evidently* (*expresses logical deduction*); ka *right now, right then*; kapha *for the time being.*

PHONOTACTICS OF CAYUVAVA

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0. Introduction
1. Phoneme identification
2. Phoneme production
2. Phonotactics

0. In the first volume of the IJAL, Crequi-Montfort and Rivet[1] presented a brief summary grammar and vocabulary of the Cayuvava[2] language of Bolivia. Except for a few limited word lists collected by travelers this has been the only material available on the language, now spoken by less than one hundred Indians and being rapidly replaced by Spanish. Although tentative relationships have been suggested and some similarities to various languages pointed out,[3] there is no clear evidence of any close relationship of Cayuvava to any other language. The present paper presents some further data from this language.[4]

1.0. Consonants in Cayuvava are defined as those phonemes that occur in the C position of syllables (see definition of syllable patterns in **3**) and have the physical characteristics described below. Vowels are defined as those phonemes that occur in the V position of syllables and have the physical characteristics described below. There is a class of semivowels, S, which can occur in either C or V position. They function as consonants when occurring in C position in syllables, and as vowels when occurring in V position. Since they can occur in either position, they are considered to constitute a distinct class of phonemes.[5]

1.1. All Cayuvava consonants occur in syllable-initial position, whether the syllable is word-initial, word-medial, or word-final.

Bilabial consonant phonemes are p, b, *β*, and m, as in peha ['pɛƐhaA] *kind of banana*, ariporo [a'riIporoO] *he already turned around*, dapa ['daApaA] *canoe*; baka [baAkaA] *field, farm, chaco*; ariboro [a'riboroO] *he already gave it*, dabo [daboO] *rain*; ariβɔrɔ [a'riβɔrɔƆ] *he already left*, daβo ['daβoO] *animal like an anta*, ñaβe ['ñaβɛƐ] *arm*; maka ['maAkaA] *sun*, name ['namɛƐ] *kind of tree*, tomoho ['tomoOhoO] *small water container*.

Alveolar phonemes are t, d, s, n, and r, as in takaasi [taA'kaasiI] *old man*, kita

[1] G. Crequi-Montfort and Paul Rivet, La Langue Kayuvava, IJAL 1.4 (1917–21), 245–65.

[2] This transcription is recorded by Mason and McQuown. Phonetically the name is [kayuβaβa] with such variant transcriptions as Cayubaba (Pauly) and Kayuvava (Crequi-Montfort and Rivet).

[3] J. Alden Mason (The Languages of South American Indians, Handbook of South American Indians, Bulletin 143, Vol. 6, 273) summarizes the proposed relationships as follows: 'Loukotka (1935) saw evidences of Arawak intrusion in Cayuvava and Markham (1910) considered it a branch of Mojo, but there has been no evidence presented for its wider relationships. Crequi-Montfort and Rivet (1920) found some lexical resemblance to Guaicuru but not enough to assume any relationship; some, but even less resemblance was found to Tuyoneiri, Canichana, and Movima.

[4] Data for this paper were gathered in Bolivia under the auspices of the Summer Institute of Linguistics in the years 1958–59. Two informants were used, one a young man who was shifting rapidly into Spanish and in the process of deliberately forgetting his mother tongue; the other, Don Pablo Atoyai, an older man, who took considerable pride in the knowledge of his Indian tongue. Writing of this paper was undertaken as part of the requirement for the Master of Arts degree at the University of Texas during the school year 1959–60. I wish to express my special gratitude to Archibald A. Hill and Winfred P. Lehman for their invaluable help in this undertaking.

[5] The more traditional treatment, of course, would be to consider them to be consonants y and w in C position, and vowels i and u in V position. See, however, Hill's similar treatment of English semivowels in his Introduction to Linguistic Structure (New York, 1958), 69.

[ˈkiItaA] *the water*, kitɔre [ˈkiItɔƆreƐ] *kind of tick*; daru [ˈdaruU] *hand*, dapidi [ˈdaApidiI] *mother*, kidore [ˈkidoreƐ] *the fire*; sisisi [ˈsiIsiIsiI] *rattlesnake*, soisoi [soˈiIsoiI] *good spirits*, bisi [ˈbiIsiI] *firewood*; namono [ˈnamonoO] *rat*, ene [ɛneƐ] *leaf*, arenahi [aˈrɛnaAhiI] *this*; ribera [ribɛraA] *leg*, ruca [ˈruUcaA] *wine*, jokore [joOkoreƐ] *eye*.

Alveopalatal phonemes are č, j, š, and ñ, as in čehečehe [čɛƐˈhɛƐčɛƐhɛƐ] *he is hunting it*, čururu [ˈčurururU] *fry*, čočo [ˈčoOcoO] *snake*, čaβe [ˈčaβɛƐ] *liver*; jerire [ˈjɛrireƐ] *worthless*, juhuru [ˈjuUhuruU] *cotton*, pïjïa [ˈpïjïaA] *he is standing*, jaβe [ˈjaβɛƐ] *very*; iše [ˈišɛƐ] *skin*, šakahe [ˈšaAkaAhɛƐ] *stomach*, rišoko [ˈriIšoOkoO] *hay*; ñepo [ˈñɛƐpoO] *again*, eñe [ˈeñɛƐ] *tail*, naïñï [ˈnaïñïI] *worm*.

Velar phonemes are k, and h, as in kihibere [kiIˈhibɛrɛƐ] *I ran*, iˈakeha [iˈakɛƐhaA ~ ˈyaAkɛƐhaA] *large type of mosquito*, tætæke [ˈtæÆtæÆkɛƐ] *to straighten*; hačočoe [haAˈčoOčoɛƐ] *I love*, iramohe [iˈramoOhɛƐ] *his town*, uˈhiai [uUˈhiaiI] *I go*.

1.2. Cayuvava vowels all occur as nuclei of syllables, and may be either the second member of the syllable (to be discussed later) or the sole member. Thus, a vowel may either be word-initial or word-final, depending on the spot that its syllable occupies.

Front vowels are mid e, and low æ, as in hiβeβere [hiˈβeβɛreƐ] *I am running*, βehere [ˈβɛƐhɛrɛƐ] *he shouts*, baete [ˈbaɛteƐ] *tapir*, aene [ˈaɛneƐ] *his tail*; ipæče [ˈiIpæÆčɛƐ] *large type of basket*, baætæ [ˈbaæÆtæÆ] *anta*, hiβæβæræ [hiˈβæβæræÆ] *I am shaving*.

Central vowels are high ï and low a, as in pïïræ [ˈpïïræÆ] *slowly*, patïha [ˈpaAtïIˈhaA] *red*, rabïkï [ˈrabïIˈkïI] *is strolling about*; anahi [ˈanaAhiI] *this*, areai [aˈreaiI] *first person singular*, bada [ˈbadaA] *turtle*.

Back vowels are mid o and low ɔ, as in daβo [ˈdaβoO] *large, nonedible animal*, dabo [ˈdaboO] *rain*, bočo [ˈboOčoO] *toad*, bore [ˈboreƐ] *give*, bado [ˈbadoO] *buzzard*, bɔčɔ [ˈbɔƆčɔƆ] *sell*, bɔre [ˈbɔreƐ] *starch from yucca*, daβɔ [daβɔƆ] *kind of fish*, darɔ [ˈdarɔƆ] *gravel*.

These vowels may occur in morpheme-initial position but have not been encountered in word-initial position simply because the morphemes in which they occur have not been found in word-initial position: ae, ï, o and ɔ.

1.3. Cayuvava semivowels, i and u, indicated by S, occur in both the C and the V positions of the syllable and in such positions function exactly as a member of the class for which they are substituting in the syllable. There is no limit upon the distributional occurrence of any allophone of these semivowels except that no consonantal allophone of S may occur as a member of a CC cluster, as will be defined later.

The high front semivowel i occurs in such words as: iše [ˈiIšɛƐ] *skin*, mitia [ˈmiItiaA ~ miItiyaA] *two*, tuijiñika [tuiˈjiñiIkaA] *on house top*, iepe [ˈieƐpɛƐ ~ ˈyɛƐpɛƐ] *more*, iˈarau [ˈyarauU ~ iˈarauU] *the night*.

The high back semivowel u occurs in such words as: dakuU [ˈdaAkuU] *shovel*, irabadu [iˈrabaduU] *the sin, the wrong*, raˈutæræ [raˈuUtæræÆ] *rice*, ˈuauăhă [ˈwawăhăA] *want*, iăˈuerăhă [yaˈwerăhăA ~ iăˈuerăhăA] *the witch*.

2.1. The voiceless bilabial stop p has a slightly aspirated allophone when followed by a vowel, and an unaspirated allophone when in a cluster with r upon the loss of an intervening weak semivowel i in a syllable preceding stress: aripirito [ariIˈpiriItoO] *already planted*, piriβeβere [piriˈβeβɛreƐ ~ priˈβeβɛreƐ] *you are running*.

The voiced bilabial stop b has a simple voiced allophone when before vowel or when in cluster with r (see discussion of clusters), and a prenasalized allophone Mb when in syllable-initial and word-initial (see discussion of nasalization): bada [ˈbadaA] *turtle*, bisi [ˈMbiIsiI ~ ˈbiIsiI] *firewood*.

The voiced bilabial fricative β has the following allophonic variants: [β], the phonemic norm, occurs in the absence of

any outside influence; [Mβ], occurs in the environment of a nasalized vowel or a member of the nasal consonant series; [v] occurs in some idiolects when followed by e or a: βemame [ˈβɛmamɛɛ ~ ˈvɛmamɛɛ] *milk*, βače [ˈβaAčɛɛ ~ ˈvaAčɛɛ] *support*, koraNβa [ˈkoraNβaA ~ ˈkoraNMβaA] *large, black birds*.

The voiced bilabial nasal m has one allophone, the phonemic norm: maka [ˈmaAkaA] *sun*, tomo [ˈtomoO] *small container of water*.

The voiceless alveolar stop t has a slightly aspirated allophone, the phonemic norm, when followed by a vowel, and an unaspirated allophone when in a cluster with r upon the loss of an intervening weak semivowel i in a syllable preceding stress: titido [ˈtiItidoO] *kind of bird*, tiriβeβere [tiriˈβɛβɛrɛɛ ~ triˈβɛβɛrɛɛ] *we are running*.

The voiced stop d has a simple voiced allophone, the phonemic norm, before vowels, and a prenasalized allophone [Nd] in word-initial or if preceded by a nasalized vowel. It is produced with the tongue tip in a position almost interdental, clearly visible during speech: data [ˈdaAtaA ~ ˈNdaAtaA] *kind of fish*, kodo [ˈkodoO] *wild turkey*.

The voiceless alvoelar sibilant s has one allophone, the phonemic norm: sopiri [ˈsoOpiriI] *needle*, isie [ˈiIsiɛɛ] *tooth* (possessed).

The alveolar nasal n has one allophone, the phonemic norm: naβa [ˈnaβaA] *dog*, nanaka [ˈnanaAkaA] *path*.

The alveolar flap r has the following allophones: [gr], an erratic, unstable form, has been encountered in word-initial position in one idiolect, and although rare, it persistently occurred on one word (see examples); an allophone [l] occurs in word-initial position, varying with [r] when the initial syllable is in a pre-stress position; an allophone [ḍ] occurs in alternation with [l]. This [ḍ], as an allophone of r, is lacking in the full voicing of phonemic d. At times a sound indistinguishable from d, and therefore a member of the d phoneme, occurs, replacing r. This may occur in alternation with [l], or in word-medial, although still in a prestressed syllable, or even on a post-stressed syllable, but never in a stressed syllable; the allophone [r], the phonemic norm, occurs in stressed syllables and may occur in any positions held by the other allophones: raβiri [ˈgraβiriI ~ ˈraβiriI ~ ˈraβidiI] *paddle*, riarama [riˈaramaA ~ liˈaramaA ~ diˈaramaA] *day*, rarirue [raˈriruɛɛ ~ ḍaˈriruɛɛ] *yesterday*, rimasi [ˈrimasiI] *left side*, iˈarua [ˈyarŭăA] *death*.

The alveopalatal series of phonemes are considered as unit phonemes because they function exactly as other single consonants. Further, although č could be t + š, j could not be d +*ž since the latter does not exist.

The voiceless alveopalatal affricated stop č has one allophone, the phonemic norm: čeča [ˈčɛɛčaA] *bat*, čɔčɔkɔ [ˈčɔƆčɔƆkɔƆ] *ash*.

The voiced alveopalatal affricated stop j has a simple voiced allophone, the phonemic norm, except when preceded by a nasalized vowel (see Nasalization) when a prenasalized variant [Nj] may occur: jahu [ˈjaAhuU] *below*, arikaNjahĭ [ariIˈkaNNjaAhĭĬ ~ ariIˈkaNjaAhĭĬ] *he has already fallen*.

The voiceless alveopalatal sibilant š has one allophone, the phonemic norm: irišo [ˈiriIšoO] *new*, arišupuru [ariIˈšuUpuruU] *it is strong*.

The voiced alveopalatal nasal ñ has one allophone, the phonemic norm: rañuhuN [ˈrañuUhuNU] *he brings it*, pañiañi [paˈñiañiI] *eat*.

The voiceless velar stop k usually occurs in its lightly aspirated allophone, the phonemic norm, but one voiced allophone [g] was recorded in a word which also contained a nasal in an adjacent syllable: keiβo [ˈkeiβoO] *it is there*, kiñabe [ˈkiñabɛɛ ~ ˈginabɛɛ] *arm*.

The voiceless fricative h is identified as velar for reasons of symmetry. It has no great degree of velar friction. It occurs

phonemically in syllable-initial position, as do other consonantal phonemes. Its function as a consonant does not vary with dependence on the presence of stress as does that of the semivowels. It has an allophone [H] when there is a nasalized vowel adjacent. The h is often assimilated to š, with which it is in morphophonemic alternation, in rapid speech in some idiolects when the high, front semivowel i or the high mid vowel e is in the environment. Speakers who produce this š will restore the h, the phonemic norm, when asked to speak more slowly. This situation is accentuated by the voiceless trailoff of the preceding high front i (see following sections on vowels and semivowels). Examples: iăkɛ̆'haama [yăAkɛ̆ɛ̆'-haamaA] *one who listens*, mamihiN ['mamiHiNI ~ 'mamihiNI] *child*, i'ahiha ['yaAhiIhaA ~ 'yaAhiIŠaA] *fat*, ihiki ['iIhiIkiI ~ 'iIŠiIkiI] *the corn*, arihihibee ['ariIhiI'hibɛɛɛ ~ 'ariIŠiI'Šibɛɛɛ] *I have already put the top on*.

2.2. There are six vowel qualities, but there is one significant feature applicable to all, and to semivowels when functioning in V positions. Vowels occurring in utterance final position or followed by a voiceless consonant in initial or medial syllables all occur with a voiced variant followed by a voiceless trailoff or what might be described as a slight aspiration of the same quality as the vowel. This aspiration differs markedly in quality and in distribution from the sound that is interpreted as the phonemic h. It is more lenis and does not have the friction of the h.

The mid front vowel e occurs as [e], when preceding i, and occurs as [ɛ] in all other positions: meinare [me'inarɛɛ] *trees*, kaheče ['kaAhɛɛčɛɛ] *his foot*.

The low front vowel ae has one allophone, the phonemic norm: iβæha ['iβæAhaA] *small fox-like animal*, tætæke ['tæAtæAkɛɛ] *my seed carrier*.

The high central vowel ï has one allophone, the phonemic norm: paidaïha [pai'daïIhaA] *is dark*, tïredata [tï'rɛdaAtaA] *pot*.

The low central vowel a has one allophone, the phonemic norm: aβača ['aβaAčaA] *duck*, baako ['baaAkoO] *they arrive*.

The mid back vowel o has one allophone, the phonemic norm: paidaoha [pai'daoOhaA] *is full*, aborore [a'borɔrɛɛ] *my neck*.

The low back vowel ɔ has one allophone, the phonemic norm in most idiolects, but in some idiolects it may occur as a slightly unrounded allophone [ɔ̈]. Examples: badɔeho [ba'dɔɛɛhɔɔ] *thus they said*, tɔredata [tɔ'rɛdaAtaA] *fish scales*.

2.3. There are two members of the semivowel series of Cayuvava. They have the following features in common: each has at least one consonantal and one vocalic allophone; the vocalic allophones of both are weak as revealed by the tendency to disappear in prestressed syllables, particularly in fast speech; the vocalic allophones are syllabic, and the consonantal allophones are nonsyllabic.

The semivowel i has a high front vocalic allophone [i] in the V position of the syllable: aripirito [ariI'piriItoO] *already planted*, piriβeβere [piri'βeβɛrɛɛ ~ pri'βeβɛrɛɛ] *you (pl.) are running*, jaromihi [ji + a'romiIhiI = ja'romiIhiI] *with their children*.

It has a consonantal palatal allophone [y] in the C position of syllables, and a consonantal off glide before certain vowels. The consonantal allophone [y] may, in some idiolects, be replaced by the phoneme j, before e: 'iaβo ['iyaβoO] *the eagle*, 'uarie ['warĭɛɛ ~ 'warĭyɛ̆ɛ̆] *kill*, i'oene ['yočnɛ̆ɛ̆ ~ i'očnɛ̆ɛ̆] *the capywara*, 'iedaβa ['yedăβăA ~ 'jɛdăβăA] *the tiger*.

The semivowel u has a high back vocalic allophone [u], in the V position of the syllable in the following words: ariñukue [ari'ñuUkuɛɛ] *he already lay down*, burukerere [buruU'kɛrɛrɛɛ ~ bruU'kɛrɛrɛɛ] *water boa*.

It occurs as consonantal bilabial [w] in the C position of syllables in the following words: rauaβa ['rawăβăA] *star*, pauauaha [pa'-wawăAhăA] *want*.

2.4. Nasalization occurs in three distinct ways in Cayuvava. The following analysis

is submitted as being an economical method of describing the occurrence and functions of this phenomenon.

Phonetic nasalization occurs as nasal onset for the following conconants: b, β, d, j and h, as previously described. Such occurrence is non-phonemic since it is fully predictable. The point of articulation of these nasal onsets is determined by the following consonants. These onsets are produced by occurrence of a phonemic nasal, whether vowel or consonant, in the environment. Nasal onset can also occur in utterance-initial position where it seems to be a free variant of oral onset.

For these voiced consonants nasalization is indicated in the phonetic examples by N or M preceding the allophone, depending on which point of articulation is to be indicated. For h the non-phonemic nasalization is indicated by H since the reference to the point of articulation is not pertinent.

Nasalization occurs as one of the distinctive features of the consonant phonemes m, n and ñ, as previously indicated.

Nasalization also occurs as a phonemic feature concurrent with any vowel quality. In this paper such nasalization is symbolized by N written after the nasalized vowel. This is the same N symbolization as is used for the phonetic transcription of prenasalized consonant allophones. This means that in some phonetic examples there may be both the N indicator for the vowel and the [N] or [M] for the following consonant, but in the phonemic example only the N for nasalization of vowel will be shown. It is recognized that it would be equally correct to set up a nasalized series of vowels, but this method of analysis is chosen as being the most economical.

Due to the tendency for nasalization to spread over some of the adjacent segments there was some difficulty in finding clear contrasts. It was necessary to find vowels on which nasalization occurred in the complete absence of any member of the nasalized consonant series. Examples of vowels with nasalization in contrast with vowels without nasalization are found at the end of this section.

There exist in Cayuvava a few words which sound to outsiders as if they contained n functioning as a syllable closing consonant, in contrast to the patterning of all other consonants. Such words are: moN′diriNriN [mon′diriNriN] *small*, meN-daru [′mɛNdaruU] *five*.

In our analysis these forms contain a nasalized vowel which produces a nasal onset for the following d and it is this combination which produces the impression of a syllable-closing consonant n. This analysis is borne out by what happens to words borrowed from Spanish. In words from Spanish which contain a syllable-closing consonant n the n is lost, thus strongly suggesting that Cayuvava does not tolerate n as a syllable closer. Note the following words borrowed from Spanish: manteka *lard* = mateka [maAtɛƐkaA], limón *lemon* = rimo [′rimoO].

Examples of vowels with nasalization in contrast to those without nasalization are now given: poNpoN [′poNOpoNO] *papaya*, popo [′poOpoO] *small duck*; namoNtoN [′namoNOtoNO] *your father*, namono [′namonoO] *rat*; akoNkoNče [a′koNOkoNOčɛƐ] *his banana*, akɔhɔe [aA′kɔƆhɔɛƐ] *repainting as with whitewash*; tïNteN [′tïNItɛNƐ] *hair*, tete [′tɛƐtɛƐ] *aunt*; siNsiNhaasi [siNIsiNI′-haaAsiI] *short man*, sisisi [′siIsiIsiI] *rattle-snake*; siNiNreN [′siNiNrɛNƐ] *back*, ari′siire [ariI′siirɛƐ] *you* (*sg.*) *are fine*.

Examples of nonphonemic nasalization of consonants: añaβe [′añaMβɛƐ] *his arm*, tuteNdaru [tuU′tɛNNdaruU] *charcoal*.

2.5.1. A summary of literature on the subject of junctures reveals a difference of ideas as to whether juncture refers to the point and method of joining linguistic elements, or to terminal characteristics, or to disjoining elements.

For the purposes of this discussion linguistic junctures are considered from two points of view: phonemic and structural. A phonemic juncture must occur at a juncture point (to be defined later) and it must be a verifiable physical event, being audible or

producing an audible effect. This physical event must be isolatable, and not related to or dependent on any other phonemic feature, or any feature which may make it predictable.

With the above-mentioned definition it will be noted that phonemic juncture will not be assumed if the phenomenon can be subsumed under any other phoneme, or can be shown to be predictable from any other phonemic feature. This does not deny that phonemic juncture may exist, but it may result in the recognition of a potential juncture.

Structural juncture includes all junctures which occur for phonotactic reasons and also all junctures which occur at the terminal of an identifiable linguistic unit, such terminal being dependent upon the structure rather than upon a phonetic phenomenon.

A juncture point is a point in a morphological chain at which frequently, although not always, junctures occur. At every juncture point there must be either a juncture or an absence of juncture. Cayuvava has been shown to have points at which although a juncture is absent, one might be possible, that is, it has potential junctures at these points; and, in contrast, there are other points at which a juncture is impossible. At the present stage of analysis, however, all potential junctures are found to depend upon some phonemic feature by which their occurrence is predictable. These may be noted as follows:

Syllables can be clearly identified and their terminals recognized. Syllables also are marked by occurrence of stress.

Stress groups have their terminals dependent upon and are predictable by the occurrence of strong stress.

Utterances are marked by phonemic pitch, although not all the details of this are clearly identified.

The phonotactics of Cayuvava reveal limitations as to the occurrence of potential junctures. No juncture of any type can cut the following sequences: CV and CCV. The only point at which a phenomenon parallel to +−juncture can be postulated in the present state of my data is in the sequence SV (S = semivowel). As has been stated earlier, the sequence SV can vary between being monosyllabic and dissyllabic. The distinction, however, can be handled by describing the position of the stress onset. If this is done, the functions of +−juncture are then taken over by stress.

At the present stage of analysis it is impossible to establish phonemic juncture (see discussion of pitch, below), but juncture points have been identified so that later studies could be concentrated upon data at those points, with the possibility of establishing juncture as a phoneme.

2.5.2. There are three identifiable suprasegmental phonemic patterns of pitch or intonation in Cayuvava. These occur in coordination with the stress but also function separately from it. While the stress generally adheres quite closely to the syllable structure, the pitch or intonational pattern extends itself so that it affects a syntactical sentence unit or utterance. The stress group is oriented toward the syllable while the intonation pattern is oriented toward the utterance.

Three pitch patterns are distinguishable.

Pattern One: following the final strong stress of any utterance, such stress usually occurring on the antepenultimate syllable, the pitch drops lower, disappearing in the final trailoff vowel. This indicates a final juncture in which the speaker intends no further utterance. Such a terminal might be marked by a period.

Pattern Two: following the final strong stress of any utterance the pitch is maintained to the end of the stress group at approximately the same level attained at the point of stress. Such a pitch-stress group may be terminated with a short tempo component of insignificant length. This indicates a terminal or juncture at which the speaker intends to continue with another utterance immediately. Such a terminal

might be marked by a comma, a period or a dash.

Pattern Three: following the final strong stress of any utterance any intervening syllables will maintain the pitch level attained at the point of strong stress, but the final syllable of the utterance will have a sharp rise of pitch. This indicates a question, and might be marked by a question mark.

All syllables in a pre-strong-stress position occur with a pitch relatively lower than the pitch attained at the point of strong stress, but this is non-phonemic.

At present the data on Cayuvava do not enable me to isolate more than three varieties of significant pitch, namely, falling, extended, and rising as described above. It appears that no variation in the pitch of syllables before the position of strong stress is possible so that my three pitch patterns seem to describe all contrasts adequately. If, however, contrasts in pitch are found to occur either on syllables with strong stress or on any syllable preceding, then it will be necessary to set up phonemes of pitch as separate from the pattern already described. These patterns will then be considered pitch morphemes.

2.5.3. There are two degrees of phonemic stress in Cayuvava, weak and strong. Strong stress generally occurs on the antepenultimate syllable of utterances of three or more syllables, and on the initial syllable of shorter utterances. This strong stress helps in many cases to identify 'words' in the language, but is not entirely reliable because some morphemes have their own strong stress. Certain imperative verb forms have strong stress on the final syllable, such strong stress overriding any intonation or pitch pattern. On the other hand, there are certain clitics and particles that have no phonemic strong stress and these readily conform to a tri-syllable stress group patterning. The tri-syllable stress group patterning marks strong stress from the final syllable of multi-syllable utterances. Strong stress occurs on the antepenultimate syllable and every third syllable preceding it. This appears to be a sentence-level pattern but it can be interrupted by any morpheme with phonemic strong stress. Thereafter the pattern will resume, counting from the interrupting strong-stressed morpheme.

Strong stress /'/ will be marked only when it does not conform to the antepenult pattern or when occurring in connection with an SV sequence or the CCV sequence. Weak stress /ˈ/ will be marked only when it occurs with the SV sequence and is needed for clarity.

Examples of stress patterns: pečai'pe 'kiasi? ['pɛčaiI'pɛ 'kiăAsĭI?] *where is the man?*, ariuuča arĭ'uŭUčăA] *he came already*, arikoro 'ñepo [a'rilkoroO 'ñɛpǒO] *it-already-went-back-in-again*, bisiriaa [bĭIsĭ'riăăA] *it is straight*, i'auha [i'yaŭUhăA] *thorn of a palm* (note this word is pronounced alone, but now contrast it in a compound with another morpheme), iăhŭ'hamiño [yăAhŭU'-hamiñoO] *small peto bee*, uhiai [uU'hiăĭI] *I go*, uhia ['uUhĭăA] *you* (*sg.*) *go*, boreje're ['borɛjɛ'rɛɛ] *give it to me!*, aβi'ro [aβi'roO] *come*. Note too, kita ['kiItaA] *the water*, but in a sentence iki'ta pare'repeha [ĭIk-ĭI'taA părĕ'rɛɛpĕɛhăA] *the-water is-clean*. The foregoing utterance contains more than one word but adheres to the trisyllable stress group utterance pattern. When, however, such a phrase is broken into smaller phrases, the stress patterns vary to fit the new smaller units; see the following example: ari'supuru kida'bukue [ariI'suUpuruU kida'buUkuɛɛ] *already -is-strong the-wind*.

In many languages all that is significant is that stress occurs. In Cayuvava there are two significant features: (1) that stress is occurring, and (2) the position on which it occurs. This contributes to its substitutability for juncture and makes it conform more to the pattern of segmental phonemes.

3.0. In Cayuvava the syllable is the basic unit. That is, all segmental phonemes occur in syllable units and the suprasegmental

features function in direct relation to syllable units.

There is a class of phonemes which occur alone in minimal utterances. These are vowels. There are additional phonemes which do not occur alone but share minimal features with those which are classed as vowels. These too are classed as vowels. There is another class of phonemes which have allophones which share minimal features with vowels, and function as vowels, but have other allophones which function as consonants. These are semivowels.[6] Consonants are all other segmental phonemes.

Each vowel appears to occur with a distinct relation to the stress, both on the word and sentence or utterance level, and without particular regard to the occurrence of consonants. This emphasis of vowel-stress relationship indicates that each vowel should be considered as a syllable nucleus. Therefore, in this language the presence of a vowel indicates the presence of a syllable.

Thus in Cayuvava the number of syllables in any utterance is exactly the number of vowels and the vowels therefore define the syllable. The V may be preceded by C, rarely by CC, or by stress. A V may be followed by stress or silence. Thus the syllable patterns are V, CV, and rarely, CCV. These syllables occur clustered into stress groups, with a strong stress falling on every third syllable, marking back from the end of the utterance. (Exceptions to these stress groups have been noted previously.)

3.1. All consonants have been found to occur in syllable initial position, and in syllables with either strong or weak stress.

Consonant clusters are very rare in the language. They have been encountered only in the syllable preceding the strong stressed antepenult syllable and then only when that preceding weak stressed syllable contains a semivowel i or u which may be lost between consonants. This results in the CCV cluster of tri-, pri- or one case of bru-.

3.2. All single vowels occur in both strong and weak stressed syllabic positions. There is a phenomenon of vowel harmony that occurs in bisyllabic morphemes, especially those which have r initial in the second syllable. The complete circumstances for predicting vowel harmony are not clear at this stage of the analysis.

Up to three vowels may occur in cluster in a stress group. Clusters may be of like or of diverse vowels.

When the antepenultimate strong stress occurs with the semivowels u and i, whether these function as vowels or as consonants depends on the number of vowel nuclei following the strong stress. That is, if there are three other vowels before the end of the utterance, then the consonant form will occur, whereas if there are only two other vowels, then the semivowel i or u will occur within the stress group functioning as a vowel (to illustrate: 'SVCV > 'VVCV, whereas 'SVVCV > 'CVVCV). Examples of types of clusters (strong stress will be marked in all cases in order to facilitate study of the stress groups): 'čaada *four*, ka'paisi *his tooth*, 'ačae *mouth*, 'siNire *back*, 'iasi *man*, 'iaroho *stone*, βa'riede *alcohol*, ka'iuaβa *Cayuwava language*, kapa'kirue *your fingernail*, kira'utere *the rice*, 'pïire *slowly*, ki'ačae *the mouth*, aN'retačo'čoai *he loves me much*, aNjaN'iuhue *carry in hand*, 'aria'ijare *he spoke*, ari'aoNmoN *they already have named him*, uï'rïuïrï [wï'rïwïrï] *iguana*, ma'rahaha'eiki *their blankets*, 'jaNaNre *in him*, hitæ'kæræaN'itui *I will get up*.

Between stress groups, it is possible, though rare, to have clusters of vowel-syllables with at least four members in a sequence: 'βadača'oai *my younger brother*.

[6] For convenience and simplicity of statement, any further reference to consonant or vowel distribution will be considered to include S in either its consonantal or vocalic allophone with only the limitations given previously.

ARAPAHO IV: INTERPHONEMIC SPECIFICATION*

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4.0. Introduction (acknowledgments, materials collected, informants)
4.1. Consonants
4.2. Vowels
4.3. Consonant-vowel sequences
4.4. External morphophonemics

4.0. This paper concludes the first series of articles on Arapaho, which have been concerned with phonology, texts, and lexicon.[1] An adequate treatment of morphology and syntax presupposes some additional field work, which I hope to be able to carry out soon.

A short exploratory field trip to the Northern Arapaho of the Wind River Indian Reservation (Wyoming) in 1949, sponsored by the Graduate School of Indiana University, was followed in 1950 by a full-summer field trip to the same locality under grants from the American Philosophical Society and the Indiana University Graduate School. In the summer of 1952, financial assistance from the American Philosophical Society and Indiana University made it possible to bring a Northern Arapaho tribesman to the Bloomington campus to serve as an informant during the Linguistic Institute session; his services were used in both a course in field methods and my own research. I am much indebted to the two institutions mentioned above for their material support of my work on Arapaho. In August of 1957 I was able to supplement my field notes with about thirty hours of additional work using an Arapaho informant who was then in Flagstaff, Arizona, in connection with research on sign language sponsored by the department of anthropology of Indiana University.

The material obtained from my Arapaho informants falls into three categories. Since the primary interest has been linguistic, the major part of the raw data pertains to the language. The bulk of these linguistic data is in the form of traditional narratives; these texts are supplemented by informants' translations and by numerous interpretative forms elicited with respect to the individual texts. Aside from the texts, word lists (body parts, numerals, fauna, white-culture elements, etc.) as well as paradigms were elicited. For experimental purposes, some eliciting with pictures was attempted during the summer of 1952.

Most of the linguistic data were phonetically—and later phonemically—transcribed directly from the speech of the informants. In addition to this record, wire and subsequently tape recordings of texts and of some other material were made to facilitate the checking of the analysis, particularly with regard to prosodic features. Copies of most of the recordings are deposited with the Archives of Languages of the World at Indiana University.

Besides the linguistic material (including the folkloristic texts mentioned above), a number of tales were collected in English. All of these have been published.[2]

Finally, recordings were made of a con-

* Arapaho I, II, III in IJAL 22.49–56, 151–58, 266–72 (1956).

[1] A bibliography of works on the dialects of the Arapaho division, including those based on my own linguistic research, may be found elsewhere in this issue. Only abbreviated references will therefore be used throughout this paper.

[2] Zdeněk Salzmann, An Arapaho Version of the Star Husband Tale, Hoosier Folklore 9.50–58 (1950); Zdeněk and Joy Salzmann, Arapaho Tales I, Hoosier Folklore 9.80–96 (1950); Zdeněk and Joy Salzmann, Arapaho Tales II, Midwest Folklore 2.21–42 (1952); and Zdeněk Salzmann, Arapaho Tales III, Midwest Folklore 7.27–37 (1957).

siderable amount of Arapaho music. These were ably analyzed by Bruno Nettl under the guidance of George Herzog of Indiana University.

Most of the linguistic material was obtained in 1949 and 1950 from the late John B. Goggles (1883–1952), a Northern Arapaho of Ethete, Wyoming (Wind River Reservation). A friend and guide of Truman Michelson, Goggles proved to be a very cooperative and intelligent informant. Because of his appreciation of the old values, his natural yet judicious interest in his native language, and his reliability, the quality of the data he provided may never be duplicated.

The remaining portion of the material comes from two informants. Data obtained in 1952 and 1957 were contributed by William Shakespeare (born 1901) of Arapahoe, Wyoming, an acculturated Arapaho with useful experience as a tribal interpreter whose help I greatly value. Some data obtained in 1949 and 1950 were provided by Ralph Edward G. Hopper (born 1908) of Ethete, Wyoming; however, his chief cotribution was to our record of Arapaho music. Other native speakers (including a few women) were consulted on details only.

4.1. Distributional statements made below and throughout this paper are in reference to the contour as the matrix (see Arapaho I, Section **1.1**).

Arapaho consonant clusters have been dealt with in Section **1.5.1.** I find no INITIAL consonant clusters in my material.

The paragraphs dealing with MEDIAL clusters contain two errors and several omissions. The examples heh*θ*íʔtoxú*θ*iʔ and neʔniihníniskóhóehkóniʔ (both on p. 52) should be corrected to read hex*θ*íʔtoxú*θ*iʔ and neʔniihníniskóhóexkóniʔ, thus eliminating two clusters.

The following clusters need to be added: -t*θ*-, -tw-, -čt-, -čk-, -čx-, -kk-, -kʔ-, -*θ*x-, -sx-, -sh-, -sw-, -ht-, and -wx-.

Examples are: heet*θ*iʔisóónoo *I will urinate*, héétwonbii*θ*ihnoo *I am going over to eat*, hínee wóoxé hoow(u)čéčtoyo(o) *that knife is not very flat*, kohoʔowóon nihʔeenéíčkúu*θ*óót *he was throwing up a ball*, híto ʔóowúʔ héhneeheečxoočóotíniʔ *his house is very narrow*, nóówo hókokkúhebínoo *I like to drink soup*, nonóhʔoʔ nóókuhéheʔ hetíí*θ*oo hee*θ*éihókʔúusóhʔoho *"Tell [the bear,] 'I killed the rabbit,' " said her brothers . . .* (from a traditional narrative), nii*θ*xóeyóó *fence*, béxkoʔú héniisxohʔonóó*θ*i nííniʔičííhi*θ*iʔ *pumpkins are good to eat when they are ripe*, hókóúyoono niinóʔo*θ* nííshíʔi hínee héétihno(o) *they make many reservoirs where I come from*, čéése ʔíseihihiʔ héé ʔihnéén hinéneeswoxúúnit *one girl pretended to be the bear* (trad. nar.), tohtóʔowóʔ *because I strike him*, and xouʔeeyóó hoowxóuwóotéé *the chimney was not straight.*

The following listing displays all the MEDIAL clusters that I have recorded. In parentheses, those consonants are listed which, in clusters, follow the consonant that precedes the parenthetical material: b (k); t (b, t, č, k, *θ*, s, h, n, w); č (t, č, k, x, n); k (b, t, č, k, ʔ, *θ*, s, x, h); ʔ (t, č, k, s, n, w); *θ* (b, t, č, k, *θ*, x, h, n); s (b, t, č, k, *θ*, s, x, h, n, w); x (b, t, č, k, ʔ, *θ*, s, x, h, n, w); h (b, t, ʔ, h, n, w, y); n (b, t, č, k, *θ*, s, h, n); w (b, t, č, k, x, n).

Among the above 80 medial clusters t, č, k, *θ*, s, x, h, and n occur geminated; y does not occur as the first member of any cluster; and x is followed by all consonants save y.

No medial clusters consisting of more than two consonants are on record.

My recordings yield only three FINAL consonant clusters, of two members each: -x(t, k) and -hʔ. Examples are: niixóósext *blue racer*, heehéxk nihʔóó*θ*oo *White Man said* (trad. nar.), and beexóó*θ*iihʔ *a little later.*

4.2. Arapaho vowel clusters have been discussed in Section **1.5.2.** Since the examples given therein do not illustrate all of the different arrangements recorded in my notes, an exhaustive list (alphabetic: e, é, i, í, o, ó, u, ú) is presented below. Vowels or clusters thereof do not occur INITIALLY.

(a) Dyadic clusters of like vowels occurring medially are: ee, ée, éé, ii, íi, íí, oo, óo, óó, uu, úu, úú; occurring finally are ee, eé, ée, éé, ii, íí, íi, íí, oo, oó, óo, óó, uu, uú, úu, úú.

(b) Triadic clusters of like vowels occurring medially are: éee, éeé, éée, íii, íií, óoo óoó; occurring finally are eeé, íií, ooó, óoo, óoó, úuú.

(c) Dyadic clusters of unlike vowels occurring medially are: ei, eí, éi, éí, eo, ío, ió, oe, óe, óé, ou, oú, óu, óú; occurring finally are ei, eí, éi éí, íe, ío, oe, oé, óe, óí, ou, óu, óú, uo, úó.

(d) Triadic clusters of unlike vowels occurring medially are: eii, oéé, óee, ooe, óóú, óuo, ouu, oúú, óuu, óúu; occurring finally are éii, oee, óee, óuu, óúú, úúo.

The following examples refer to Arapaho I, Section **1.6** (items 1 through 513), Arapaho II (items **2.1.1** through **2.5**.90), Arapaho III (items **3.1**.1 through **3.5**.6), and Arapaho Kinship Terms and Two Related Ethnolinguistic Observations (in Anthropological Linguistics; items 601 through 625).

(a) -ee-: heebeθíinén *big man*, 37, 40, 50, 62, 63, etc.; -ee: čeʔíθee *ashes*, 21, 29, 44, 70, 82, 99, 447, etc.; -eé: 2.2.32, etc.; -ée-: henéetéyéinoo *I push*, 15, 303b, 2.1.70, 2.2.56, 2.3.14, 2.5.56, etc.; -ée: 2.4.16, 3.1.11, 3.2.32, etc.; -éé-: héécesóóʔ *it is narrow*, 1, 14, 16, 21, 28, 615, etc.; -éé: čéetéé *smoke*, 434, 443, 502, 2.1.44, ʔéé *yes* (old woman speaking), etc.; -ii-: béxsiihʔi *all*, 10, 25, 31, 34, 38, 57, etc.; -ii: betíhii *tail* (of land mammals), 4, 56, 85, 96, 162, etc.; -íí: héénií *ants*, etc.; -íi-: bíitéí *ghost*, 104, 2.2.30, 2.2.46, 2.2.59, 2.3.1, 2.3.4, hiníiwóhoʔ *his* (*her*) *grandmother*, etc.; -íi: 2.1.24, 2.4.8, 3.2.34, etc.; -íí-: bííyi *feather*, 20, 26, 41, 42, 43, 56, 57, bííθib *food*, etc.; -íí: nííčíí *river*, 103, 137, 417, 476, 3.2.2, 3.2.5, etc.; -oo-: wóʔooθ *leg*, 20, 24, 30, 36, 130, etc.; -oo: hooxóonínoo *I am laughing*, 6, 40, 102, 108, 112, 407, 470, etc.; -oó: wóʔo(h)ó *cat*, etc.; -óo-: nonóotéé *it burns*, 19, 32, 406, 511, 2.1.21, 2.1.51, etc.; -óo: nóhóo *stallion*, 487, 504, 2.1.84, 2.2.33, 2.3.20, etc.; -óó-: hohóót *tree*, 17, 18, 19, 32, 38, 40, 468, etc.; -óó: hóó *porcupine*, 161b, 420, 479, 480, 503, etc.; -uu-: 6, 59, 89, 129, 156, 316, etc.; -uu: 39, 64, 130, 168, 173, 178, 179, etc.; -uú: seeníwuú *lizards*, etc.; -úu-: hoowúuní *not*, 2.2.71, 3.1.7, 3.1.29, 3.2.79, 3.4.5, etc.; -úu: 2.5.29, 3.3.13, 3.4.20, etc.; -úú-: 18, 62, 115, 119, 157, 508, etc.; -úú: múú *moo*, 118, etc.

(b) -eeé: heeé *yes* (man speaking), etc.; -éee-: hoʔéeet *clay*, 128, 2.2.63, etc.; -éeé-: 97, 133, etc.; -éée-: 3.2.114, etc.; -íii-: besíiisé? *eye*, 431, 500, 2.2.67, 3.1.32, etc.; -íií-: 3.2.84, etc.; -íií: híií *snow*, etc.; -ooó: 142a, 161a, etc.; -óoo-: hinóoox *bark* (*of a tree*), 512, etc.; -óoo: wokóoo *back* (*above the waist*), 425, etc.; -óoó-: 3, etc.; -óoó: hóoó *bed*, bóoó *road*, boxʔóoó *thunder*, netííčóoó *my pipe*, etc.; -úuú: wúuú *copulate!*, etc.

(c) -ei-: beiθón *tongue*, 13, 20, 27, 43, 91, 94, 95, 103, etc.; -ei: beʔítei *bedbug*, 84, 105, 127, 181, 459, 2.1.69, etc.; -eí-: 79, 608, 2.1.23, 2.2.22, 2.3.35, 2.4.40, etc.; -eí: neí *son!* (voc.), etc.; -éi-: henéixóʔ *I fear him*, 311, 504, 2.1.12, 2.1.28, 2.1.83, 3.2.100, etc.; -éi: woséi *devil*, 606, 2.1.28, etc.; -éí-: 4, 18, 29, 47, 54, 56, 86, 107, 109, etc.; -éí: bíitéí *ghost*, 43, 69, 413, 2.1.7, 2.1.29, 2.2.38, 3.4.36, etc.; -eo-: 502, etc.; -íe: niičíe *river*, 607, etc.; -ío-: 309b, 309c, 431, etc.; -íe: níiʔehío *bird* (obv.), etc.-; -ió-: 309a, etc.; -oe-: 2.5.43, etc.; -oe: 3.4.21, etc.; -oé: woθonóhoé *pencil*, etc.; -óe-: benééseinóehít *he is big*, 2.2.72, 2.3.8, 2.5.84, 3.3.54, etc.; -óe: 2.2.23, 2.3.13, 2.4.44, 2.5.42, 2.5.45, 3.3.39, 3.3.42, woθonohóe *paper*, etc.; -óé-: 100, etc.; -óí: 3.2.18, hóí *here!*, etc.; -ou-: 38, 108, 123, 134, 166, 2.1.3, 2.2.29, etc.; -ou: 2.2.15, 3.3.9, etc.; -oú-: 49, 440, 2.3.33, 2.4.25, 2.5.13, 2.5.60, 3.1.48, wóʔoún *cat!* (voc.), nowóʔoúw *my cat*, etc.; -óu-: konooʔóuθóóʔ *dust*, 71, 111, 2.1.23, 2.1.32, 2.2.67, 2.4.10, 2.5.32, 3.1.41, etc.; -óu: 2.5.19, 2.5.37, 3.2.54, 3.2.86, 3.3.41, etc.; -óú-: 22, 23, 42, 55, 70, 91, 94, 497, etc.; -óú: tóú *what?*, 3.3.6, 3.3.38, 3.4.19, xoxonóú *right away*, hóú *blanket*, hohóú *thank you!*, etc.; -uo: woxoθóúʔuo *young bull*

(obv.), etc.; -úó: nookuwúó *white buffalo* (obv.), etc.

(d) -eii-: čé?eiinóuyoo *snowball*, etc.; -éii: besíiiséii *eyes*, hiníiitéii *temples* (body part), etc.; -oee: 2.5.54, etc.; -oéé-: 2.3.14, 3.1.29, etc.; -óee-: 66, 3.2.17, 3.4.27, etc.; -óee: 2.4.44, 2.5.70, etc.; -ooe-: 2.4.19, etc.; -óóú-: 407, etc.; -óuo-: 477, etc.; -ouu-: 3.4.18, etc.; -oúú-: 140, 2.5.71, etc.; -óuu-: 98, 2.2.29, etc.; -óuu: 152, 2.2.18, 2.4.13, etc.; -óúu-: 2.2.45, etc.; -óúú: 51, etc.; -úúo: čéčinohúúo *chicken hawk* (obv.), etc.

4.3. All of Arapaho consonant phonemes (b, t, č, k, ?; θ, s, x, h; n; w, y) occur initially, between vowels, and finally (examples may be found in Arapaho I).

There are very few consonant-vowel (vowel-consonant) sequences that are not substantiated by my record. Examples have been found for every possible combination of the type VOWEL + CONSONANT. Among the sequences CONSONANT + VOWEL, xi, bu, ču, θu, su, and yu do not occur in my material. Such morphophonemic changes as those exemplified by the forms sísiič *duck*, sísiičii *duck* (obv.): sísiikú?uu *ducks* (pl. and obv. pl.) suggest that even a corpus more extensive than the one I am drawing on would not be likely to yield these missing sequences.

The sequence ki was obtained from Shakespeare, but not from Goggles. It occurred in interrogative sentences of the English type *did you. . . ?*, e.g., kihbííθ hókok *did you eat the soup?*, kihbén hókok or kih?ókokkúh?eb *did you drink the soup?* It appears that the sequence kih- of the above examples is a recent contraction and/or allegro style version of kóóhih- (∼kóóhix-), as in kóóhix?-íine? ítii *did you live?* Compare also kóóhuh- (∼kóóhux-) > kuh- (∼kux-) *did he . . .?*, as in kuhbííθ čó?očóó *did he eat the bread?*, and kóónihbííθ . . . *did I eat . . .?*, which does not contract, as it would otherwise cease to contrast with the *did you. . . ?* form.

The form múú *moo*, with its unique occurrence of m, is probably borrowed rather than onomatopoetic (see footnote 4 in Arapaho I, p. 49).

The sequence wi was obtained only in the expressive form wí, an interjection used, according to Goggles, "in a certain game when you barely miss a stake you try to hit with a stone."

The sequence tu is rare (cf. **2.2.46** and **2.5.50**); the possibility of my mishearing it for to is not excluded.

The sequences bo and we require a special comment. Kroeber correctly observed[3] that "between these two sounds [b and w], the rule is that b occurs before the front vowels i, e, ä, ä^n, and w before the back vowels u, o, a, a^n. This is a consistent phonetic law of Arapaho; even within the dialect the same stem changes from b to w if the vowel becomes a back one." In a footnote[4] to his observation he adds that "bä'a^n, road, and baha'a^n, thunder, are exceptions noted in simple stem words." His examples (bóoó *road* and box?óoó *thunder* in my phonemicization) may be supplemented by čóóboonoo *I am shooting* (intrans.), bó?onóóke *red buffalo*, bo?óókeč *red cow*, bó?oonéét *red horse*, bó?os *glans* (*penis*), bóó?oowu? *catchup*, néniibóótowóó niibóót *I am singing a song*, bónoo?éinóó *I fight*, and others. The sequence we occurs in my material only once, and then as a sandhi form wówéé?-ihbíh?iyóón *it was already dark* (cf. **2.3.6**) corresponding to the absolute wów (∼ wow) héé?ihbíh?iyóón. Morphophonemic examples of the b ∼ w alternation are numerous: cf. néibehe? *my grandmother* and hiníiwóho? *his (her) grandmother*; nonoohobéínoo *he sees me*, nonoohówoot *he sees him*, and nonóóhowúθi? *they see me*.

4.4. As has been stated in the discussion of phonology, formal Arapaho utterances are broken up by junctures into contours corresponding closely to words. The change from the formal style to the allegro style of a spontaneous narration or of an informal discourse, with the concomitant consolidation of two or more such contours, is in certain instances accompanied by changes affecting the phonemes at the juncture

[3] Arapaho Dialects, pp. 78f.
[4] Ibid., p. 79.

boundary or, less frequently, in other positions as well.

By far the most common type of such an EXTERNAL morphophonemic change is the loss of h in instances where a consonant cluster terminating in h would otherwise be the result of the fusion of two contours. Thus, hínee hókok héhneeténéi?óó? becomes híneehókokéhneeténéi?óó? *that's very thick soup*, hee?íitehíθi beebéi?ón hixčébe? θíí?óókuut becomes hee?íitehíθi beebéi?ónixčébe? θíí?óókuut *there is someone standing way up there*, and so on.

When the fusing of two contours brings together two identical consonants, either a long consonant is heard, or in extra fast delivery a single consonant results, e.g., héθθeneiθi?ókteesbíiθhíitóóne? *the dog is sitting under a table*, extra fast héθenei . . . (héθ *dog*).

Unaccented short vowels preceding a sequence of consonant plus accented vowel(s) occasionally lose their voicing or are elided when delivered in the fast style: thus, čéébikóohút *he is running by* as against the allegro performance čéébkóohút. Before an utterance-final pause, the sequence -hVt has an allegro alternant -xt.

Finally, the sequence -ei- (regardless of the prosodemes it may be associated with) alternates with the sequence -ii- in rapid delivery: thus, híítoneíh?i nenííwoh?úye?ít as against híítoníih?inenííwoh?úye?ít *he's got both arms full of stuff*.

There are numerous and very intricate INTERNAL morphophonemic changes, i.e., those resulting from the association of the various morphemes that go into the making of a word. They will be discussed in connection with Arapaho morphology.

ABSTRACTS AND TRANSLATIONS

1. Latin American publications abstracted by William Bright:

La Posición Dialectológica del Pipil como Parte del Nahua del Este ("The Dialectological Position of Pipil as a Part of Eastern Nahua"). América Indígena, vol. 18 (1958), no. 4, pp. 333–39. México.

The author traces Nahua (Aztec) dialect history as follows: Pre-Nahua speech split into Common Nahua, marked by change of /ta/ to /λa/, and Eastern Nahua, marked by retention of /ta/. Common Nahua has developed into present-day Northern, Central, and Western dialects. Eastern Nahua includes, besides the dialects of the Sierra of Puebla and of central Veracruz, the Pipil dialect of southern Veracruz and Central America. Several of the isoglosses involved in this classification are discussed. [W. B.]

A Chocó Miraculous Escape Tale. By Jacob Loewen. América Indígena, vol. 20, no. 3 (1960), pp. 207–15. México.

The author presents a tale in the Sambú River dialect of Chocó, spoken in Panama. This is accompanied by an interlinear translation into Spanish, a free translation into English, and an ethnological commentary. The transcription is phonemic, recognizing the consonantal phonemes /p t k (lenis), p' t' k' (fortis), b d g, z ǰ (lenis affricates), s č (fortis affricates), m n, r ř, w y h/. Spanish loan words also contain /l/. The vowels are /i ĭ u, e o, a/, both oral and nasal. Open juncture, primary stress, and phrase stress are also marked. [W. B.]

Vocabulario Teúrgico-Mágico de los Indios Guaraos ("Priestly and Magical Vocabulary of the Warao Indians"). By Fr. Basilio Ma. de Barral. Antropológica, no. 4 (1958), pp. 27–36. Caracas.

A special vocabulary is used in ceremonies performed by priests and sorcerers of the Warao, in Venezuela. As compared with everyday language, it is distinguished by deformation and metaphorical use of native terms, by the use of archaisms, and by borrowings from neighboring languages. A Warao-Spanish vocabulary of some 200 priestly and magical terms is given; the native words are transcribed in what appears to be Spanish orthography. A Warao curing song with translation is also included. [W. B.]

Singular-Plural in Warao Verbs. By Henry Osborn. Antropológica, no. 6 (1959), pp. 1–6. Caracas.

The author presents data from the Caña Bagre dialect of Warao (Guarao), spoken in Venezuela. The consonant phonemes are /t, k, b, s, r, m, n, w, y, j/ (where /j/ is a fricative varying from [x] to [h]), the vowels are /i e a o u/, plus rare /ĭ ă ŏ ŭ/. The problem of selecting the basic form of the Warao verb is discussed. Verb forms without markers of number have intrinsic reference to plurality of action; this may be emphasized by a suffix -bu ~ -ubu and by reduplication. Reference to singular action is expressed by a suffix -n and by patterns of vowel change. An example, containing -te *future*, is plural ajite *he will hit repeatedly* vs. singular ajete *he will strike a blow*. Certain stems have been found only in the plural form, including ones meaning *play*, *eat*, and *love*. Semantically, the plural category denotes a plural actor, a plural goal, or habitual or repetitive action. The singular category denotes a singular actor, a singular goal, or distributive action. [W. B.]

Datos Lingüísticos de la Lengua Makiritare ("Linguistic Data on the Makiritare Language"). By damián de Escoriaza. Antropológica, no. 6 (1959), pp. 7–46. Caracas.

The Makiritare language in south-eastern Venezuela belongs to the Carib family. The

author describes the phonetics partly in impressionistic terms; thus a sound written *fh* is said to be "between our *f* and aspirated *h*." Bilabial stops are apparently lacking. Nouns are said to be undeclined, and only a few are pluralized; some data on derivation of nouns are given. Adjectives are more regularly pluralized; their derivation is also described. Pronominal elements are listed, including possessive prefixes which occur with nouns. Verb forms are described in such terms as: "The gerund is formed with the prefix k-, ka-, and the suffixes -éye, -áye, -eiye"; the distribution of the alternant forms is not given. The greater part of the article comprises eleven Spanish conversations with Makiritare equivalents, and a Spanish-Makiritare vocabulary of about 1600 items. [W. B.]

La Lingüística Descriptiva Aplicada a las Lenguas Indígenas de Venezuela ("Descriptive Linguistics as Applied to the Indian Languages of Venezuela"). By Martha Hildebrandt. Boletín Indigenista Venezolano, años 3–5, no's 1–4 (1958), pp. 109–12. Caracas.

The National Indian Commission of Venezuela has placed the author in charge of a program of investigation in which linguistic data will be obtained from native speakers and tape-recorded for future reference. Work has begun on the Carib languages, specifically on Macoíta and Cariña. A diachronic study of the Carib family is also under way. [W. B.]

Estructuras Mentales y Lenguaje, I. El Ejemplo Guaraúno ("Mental Structures and Language, I. The Warao Example.") By Rafael Rodríguez Delgado. Boletín Indigenista Venezolano, años 3–5, no's 1–4 (1958), pp. 113–61. Caracas.

The author, a philosopher, cites data from the Warao language of Venezuela in support of two hypotheses: (1) Human language originally had fewer sounds, fewer words, and fewer concepts than at present; it was monosyllabic, or nearly so. (2) Present-day language was built up by combination and modification of these primeval elements, which are obscured in the complexity of literary languages, but are still to be seen in the speech of primitive peoples. The author's oligosynthetic method is exemplified by such statements as the following: "The syllables ba *snake*, bo *mangrove tree*, and bu *erect, stiff, straight* seem to be in close ideological relationship and may be derived from a single primary perception, in which the forms and the dangers of snakes and mangrove trees were united on the same subconscious level." [W. B.]

Textos Folklóricos en Guarao ("Folklore Texts in Warao"). By Henry Osborn. Boletín Indigenista Venezolano, años 3–5, no's 1–4 (1958), pp. 163–70. Caracas.

Two Warao texts with free translation into Spanish. [W. B.]

Notas sobre Fonémica Huarani ("Auca") ("Notes on Huarani ['Auca'] Phonemics"). By Rachel Saint and Kenneth L. Pike. In: Estudios acerca de las Lenguas Huarani (Auca), Shimigae y Zápara (Quito, 1959), pp. 4–17.

The informant for this data, a girl of about 25, ran away from her people some ten years ago; no other speakers are accessible for study. The informant calls her language Huarani; it has been less precisely referred to as Auca (Quechua for *savage*). An examination of phonological problems results in establishment of the following phonemes: Voiceless stops are /p t k^y k/. The voiced stops /b d g^y g/ have implosive allophones and prenasalized allophones; /b g/ also have fricative varieties, and /d/ has an allophone [l]. Nasals are /m n ñ ŋ/; the sequences /mb nd $ñg^y$ ŋg/ contrast with the prenasalized stop phones, but often vary on the morphophonemic level with /mp nt $ñk^y$ ŋk/. The phoneme /w/ has a fortis [β] as an allophone, differing from the lenis [β] assigned to /b/. A phoneme /w̃/ conditions nasalization in ad-

jacent vowels. The remaining consonants are /r y/; [h ʔ] occur, but seem to be non-phonemic. The vowels /i e æ a o u/ have both short and lengthened allophones, but the latter contrast with rearticulated /ii æ æ aa oo/. Accent is usually on the penultimate syllable of the word, but there are exceptions. Intonation and juncture are briefly discussed and illustrated. [W. B.]

Shimigae, Idioma que se Extingue ("Shimigae, a Dying Language"). By Catherine Peeke (Summer Institute of Linguistics). In: Estudios acerca de las Lenguas Huarani (Auca), Shimigae y Zápara (Quito, 1959), pp. 18–28.

The Shimigae language of eastern Ecuador, also called Andoa, is a member of the Zaparoan family; it is rapidly being replaced by Quichua. It is characterized as agglutinating, with extensive use of derivative and inflexional suffixes. The root classes of nouns, verbs, and particles are defined morphologically, with examples. Noun inflection includes a distinction between particular and general, but no distinction of number. Morphophonemic alternations are said to present a 'hopeless labyrinth' at the outset, but are finally reduced to order. [W. B.]

Pronombres Personales en Shimigae ("Personal Pronouns in Shimigae"). By Catherine Peeke and Mary Sargent (Summer Institute of Linguistics). In: Estudios acerca de las Lenguas Huarani (Auca), Shimigae y Zápara (Quito, 1959), pp. 18–28.

This study states the pronominal morphemes of Shimigae, the environments in which they occur, and the morphophonemic changes which they undergo. Illustrative paradigms are provided. The transcription recognizes the consonant phonemes /p t kkʷ, d, ɸ č, s š x, m, r, w y, ʔ/. The vowels are /i i u, a ɔ/, both oral and nasal. [W. B.]

Vocabulario Záparo ("Záparo Vocabulary"). By Mary Sargent (Summer Institute of Linguistics). In: Estudios acerca de las Lenguas Huarani (Auca), Shimigae y Zápara (Quito, 1959), pp. 43–48.

Záparo is spoken on the Conambo River in eastern Ecuador; it is classified by McQuown in the Macro-Tupi-Guarani grouping. The consonant phonemes are /p t k, ɸ č, s š x, m n, r, w y, ʔ/; the vowels are /i i a u/. The Spanish-Záparo vocabulary provided consists of about 150 nouns, arranged by semantic categories. [W. B.]

Textos Quechuas de la Zona de Coracora, Depto. de Ayacucho, con Traducción por el Informante (Contribución para su Estudio Lingüístico y Folklórico) ("Quechua Texts from the Zone of Coracora, Department of Ayacucho, with Translation by the Informant [Contribution to their Linguistic and Folkloristic Study]"). By Jaime Lauriault (Summer Institute of Linguistics). Tradición, año 7 (1955–57), no's 19–20, pp. 92–146; año 8 (1958), no. 21, 66 pp. Cuzco.

Fifty-two Quechua texts are presented, with phrase-by-phrase translation into Spanish. The author prefaces the collection with suggestions for linguistic and folkloristic study of the material, based on the behavioremic theory of K. L. Pike. [W. B.]

El Sistema Numérico del Yagua (Pebano) ("The Numerical System of Yagua [Pebano]"). By Paul and Esther Powlison (Summer Institute of Linguistics). Tradición, año 8 (1958), no. 21, 8 pp. Cuzco.

The number system of the Yagua Indians, in the Amazon region of Peru, has single morphemes for 1 through 5 and for 10; other terms are composite, except for 100 and 1000, where Quechua words are used. (Most informants, however, have abandoned the bulk of the system in favor of Spanish numerals.) Different sets of numerals are used in counting different classes of objects; thus axes, teeth, furniture, oranges, and shoes all fall in a class counted by the infixation of a morpheme -ho-. A list of 57 such classificatory morphemes is given. In addi-

tion, there are noun suffixes which distinguish singular, dual, trial, and plural number. The transcription used is partly phonetic and partly phonemic. [W. B.]

Vocabulario Breve del Idioma Amuesha ("Short Vocabulary of the Amuesha Language"). By Mary Ruth Wise and Martha Duff (Summer Institute of Linguistics). Tradición, año 8 (1958), no. 21. 17 pp. Cuzco.

The Amuesha language, which had been feared extinct, is still spoken on the Pachitea River in Eastern Peru; the authors believe it to be Arawakan. The consonant phonemes are listed as /p t k, ɸ č ǩ, s š ş, x γ, m n, w y r/, plus palatalized /pʸ mʸ kʸ gʸ čʸ lʸ nʸ/. However, a phone [β] occurring before /e/ is assigned to the phoneme /γ/; and labialization before /e/ is phonemically identified with palatalization, so that [pʷe] = /pʸe/. The vowels are /e a o/, short and long; postvocalic /h ʔ/ are considered as vocalic 'modifications'. A Spanish-Amuesha vocabulary of nearly 700 words is provided. [W. B.]

Vocabulario Breve del Idioma Ticuna ("Short Vocabulary of the Ticuna Language"). By Lambert Anderson (Summer Institute of Linguistics). Tradición, año 8 (1958), no. 21. 18 pp. Cuzco.

Ticuna is spoken in the border area of Peru, Colombia, and Brazil. The consonant phonemes include /p t k kʷ, b d, č j, m n ñ ŋ̃, r, w, ʔ/; in Spanish loanwords /s/ and /l/ also occur. The vowels include /i i u, e o, a/, plus a nasalized series and a laryngealized series. Five tone levels are distinguished, with four two-level combinations. A Spanish-Ticuna vocabulary of over 700 words is provided. [W. B.]

La Lingüística ("Linguistics"). By Luis Jaime Cisneros. Mercurio Peruano, año 34, vol. 40, no. 384 (April 1959), pp. 140–53. Lima.

The author describes several important trends in modern linguistics: the Nineteenth Century was concerned with written language, with 'correctness', and with the languages of the European elites; whereas Twentieth Century linguistic science emphasizes spoken language, descriptive treatment, and embraces the speech of all peoples and classes. The contributions of Gilliéron, Vossler, de Saussure, and Sapir are discussed, and the work of Hjelmslev is said to be "the base for the present-day structuralist." The fields seen as still awaiting thorough study are semantics, stylistics, and speech pathology. The author concludes with the hope that linguistics may contribute to a definition of the distinctive elements in Peruvian culture. [W. B.]

Algunos Morfemas de Amahuaca (Pano) que Equivalen a la Entonación del Castellano ("Some Amahuaca [Pano] Morphemes which Correspond to Spanish Intonation"). By Robert Russell (Summer Institute of Linguistics). Perú Indígena, vol. 7, no's 16–17 (1958), pp. 29–33. Lima.

The Amahuaca language of eastern Peru has two tones on the syllable level, but so far as is known has no intonational system. Emphasis, interrogation, and feelings of affection towards the person addressed are all expressed by suffixal morphemes. Examples are presented in a phonemic notation, but without listing or explanation of the phonemes. [W. B.]

Vocabulario Breve del Idioma Cocama (Tupi) ("Short vocabulary of the Cocama [Tupi] Language"). By Normal Faust Wille (Summer Institute of Linguistics). Perú Indígena, vol. 8, no's 18–19 (Jan.–June 1959), pp. 150–58. Lima.

The Cocama language, a member of the Tupi family, is spoken in the Amazon River drainage of Eastern Peru. The consonant phonemes are /p t k, b d g, ɸ č, s š, m n, r l, y w, h/. The vowels are /i i u, e o, a/. Accent is included in the phonemic notation, but is usually predictable in terms of word boundary. A Spanish-Cocama vocabulary of nearly 700 words is given. It is noted that personal

pronouns and a few other morphemes have separate forms for men's and women's speech, e.g. men's yukáka, women's yukúnga *there*. [W. B.]

Acerca de la Supuesta Filiación Arawak de las Lenguas Indígenas del Uruguay ("Concerning the Supposed Relationship with Arawak of the Indian Languages of Uruguay"). By Olaf Blixen. Publicaciones del Departamento de Lingüística, Universidad de la República, no. 10. 44 pp. Montevideo, 1958.

The Indian languages of Uruguay have long been extinct; only fragmentary data are available for three of them—Chaná, Güenoa, and Charrúa. It is difficult to prove even that these languages are related to each other; however, S. Perea y Alonso has gone far beyond this and assigned them all to the Arawakan group. The author states that "the work of Perea y Alonso, a convinced Trombettian, abounds in enormous errors of method and concept", and proceeds to demolish each of the arguments for Arawakan connections. [W. B.]

Tendências de Ordem Lexical de Aculturação Lingüística em Terêna ("Tendencies of Lexical Patterning in Terêna Linguistic Acculturation.)" By Dale Kietzman (Summer Institute of Linguistics.) Revista de Antropologia, vol. 6, no. 1 (June 1958), pp. 15–21. São Paulo.

Vocabularies were obtained for the Terêna language of Brazil, using informants of three age groups. Lexical differences between older and younger speakers fall into three categories. 1) Older speakers know words referring to items of aboriginal culture, where younger speakers can give no terms. 2) Older speakers use a more diversified vocabulary, e.g. three words for different types of tree-stump; younger speakers, perhaps influenced by their knowledge of Portuguese, use only one word for all three types. 3) Older speakers use native terms, e.g. for *north* and *south*, where younger ones use Portuguese borrowings. The author uses these data to emphasize that when a culture is in transition, its language is also in transition. Great care should be used, therefore, in making ethnological deductions from linguistic materials, in the case of peoples like the Terêna. [W. B.]

En Torno al Bilingüismo en el Paraguay ("Concerning Bilingualism in Paraguay"). By Léon Cadogan. Revista de Antropologia, vol. 6, no. 1 (June 1958), pp. 23–30. São Paulo.

The Guaraní language spoken in Paraguay has, since the 18th century, been absorbing large numbers of Spanish elements, although available dictionaries fail to indicate this. Borrowing of Spanish vocabulary is so extensive that even Guaraní kinship terms are being replaced. Some borrowed words show a difference in meaning: Spanish caso *case* has the meaning *story* in Guaraní. Fusions of Spanish and Guaraní are common, as in the place name cedroty *place where there are many cedars* (Spanish cedro). Spanish influence on Guaraní syntax is also found. The writer proposes that the term Guaraní should not be used for the resulting hybrid, but should be reserved for the 'classical' language. [W. B.]

2. Anglo American publications abstracted by Dell H. Hymes and Charles O. Frake:

Native Language and Field Problems. By William H. McEwen. American Anthropologist, vol. 61, no. 4 (1959), pp. 681–682.

The writer comments on an exchange between Paul Bohannon and others concerning use of the local language in field research. The 'rationale of researching' is discussed, and a pluralistic attitude, dependent on the problem at hand, is argued for. [D. H.]

Taboo Expressions in Ethiopia. By Wolf R. Leslau. American Anthropologist, vol. 61, no. 1 (1959), pp. 105–107.

Among the pagan Gurage, girls from age

seven are organized into a society with a special language. Certain animal names are considered taboo and are replaced by other expressions. The taboo-expression and its replacement have no semantic relation, but share the same initial sound. A newly married woman will not mention her husband's name, but substitute a word with the same initial consonant. Examples are given, and a few interlingual taboos found among Gurage bilingual in Amharic are also noted. [D. H.]

On the Study of Missionary Policies. By Ralph L. Beals. American Anthropologist, vol. 61, no. 3 (1959), pp. 298–301.

Beals summarizes the linguistic activities of sixteenth century missionaries of Catholic orders in the New World, as part of a discussion of their general policies, drawing on Robert Ricard, La "conquete spirituelle" du Mexique. [D. H.]

Thoreau: Student of Anthropology. By Lawrence Willson. American Anthropologist, vol. 61, no. 2 (1959), pp. 279–289.

The author reports on Thoreau's reading in anthropology. He observes: "A special avenue of approach to anthropology was for Thoreau his interest in philology" (p. 283). He quotes Thoreau on cultural inferences from vocabulary:

> "What they have a word for, they have a thing for. A traveller may tell us that he *thinks* they used a pavement, or built their cabins in a certain form, soaked their seed corn in water, or had no beard. . . but when one gives us the word for these things, the question is settled, —that is a clincher. Let us know what words they had and how they used them, and we can infer almost all the rest. The lexicographer not only *says* that a certain people have or do a certain thing, but, being evidently a disinterested party, it may be allowed that he brings sufficient evidence to prove it" (p. 283).

Thoreau's acquaintance with reports on Amerindian languages is indicated in detail. Two intellectual motives are stated: "he recorded notes on the Indian inability to pronounce certain letters of the alphabet (as well as denials of that inability), all the evidence he could discover on whether the various languages were individual languages or dialects of a common language, and so on" (p. 284). In particular, "Thoreau made a rather particular study of the Algonquin language, partly in an effort to learn whether there was a basis in truth for the contention that resemblance existed between it and the languages of certain European and Asiatic tribes" (p. 284). [D. H.]

Symposium on the History of Anthropology. Papers by Harry L. Shapiro, James Griffin, Melville J. Herskovits, and A. L. Kroeber. American Anthropologist, vol. 61, no. 3 (1959), pp. 371–404.

In "Past Developments and Present Currents in Ethnology", (pp. 389–398), Herskovits notes that the first humanistic field to experience the impact of the (anthropological) cross-cultural point of view was linguistics. He calls attention to "the slackening of exclusive emphasis on linguistic structure in favor of ethnolinguistics" (p. 397), as one of several signs that anthropology has not lost sight of the implications of its mandate as the study of the whole man. The humanistic phase must balance the social scientific; "it is from our discipline that the humanism of our times must come" (p. 398).

In "The History of the Personality of Anthropology" (pp. 398–404), Kroeber contrasts sociology and anthropology as fields essentially sharing their basic theory, but differing in areas of most active work, methods, and motivating interests. Most conspicuous is sociology's neglect of fields which together constitute the majority of the area operated in by anthropologists, and which, save for primitive ethnography, are shared by nonanthropologists. Anthropologists seem driven to participate in so many already cultivated fields by a two-pronged impulse to apperceive and conceive at once empirically and holistically. The holistic urge is perhaps most distinctive of us as a group, balanced by love of fact, attachment to

phenomena in themselves, to perceiving them through our own senses. Although anthropology now finds itself in the house of social science, its twin parents are natural science and the humanities.

(Despite relevance of these two papers to the history of linguistics in anthropology, a separate paper on the subject is notable by its omission. As to stress on humanistic aspects, it should be noted that Sir Charles Snow has looked to linguistics as a possible bridge between the humanities and the sciences). [D. H.]

The Concept of Culture. By Leslie A. White. American Anthropologist, vol. 61, no. 2 (1959), pp. 227–251.

White defends and explicates a distinction between psychology and culturology as inherent in anthropological tradition. Things and events dependent upon symboling form a distinct class of phenomena requiring a name, and SYMBOLATES is proposed. Symbolates may be referred to two fundamentally different contexts for observation, analysis, and explanation, the somatic and the extrasomatic. Culture is the name of things and events dependent upon symboling when considered in an extrosomatic context. Other conceptions of culture are passed in review, with some attention to the views of Sapir. The well established linguistic distinction between *la langue* and *la parole* is appealed to in support of the general argument. [D. H.]

Games in Culture. By John M. Roberts, Malcolm J. Arth, and Robert R. Bush. American Anthropologist, vol. 61, no. 4 (1959), pp. 597–605.

The authors offer a general classification of games: (1) physical skill, (2) strategy, and (3) chance. Games are viewed as expressive systems, and statistical evidence suggests that games of strategy are related to complexity of the social system, games of chance to views of the supernatural, and games of physical skill to environmental conditions. Further comparative study of games and an anthropological theory of games are hoped for.

(Linguistic games are not discussed, and it is not clear what the place in the classification or theory would be of games of verbal skill, such as described by Mary R. Haas, "Thai Word Games", JAF 70.173–175 (1957)). [D. H.]

A Note on Kiowa Linguistic Affiliations. By Wick R. Miller. American Anthropologist, vol. 61, no. 1 (1959), pp. 102–105.

The relationship between Kiowa and Tanoan, postulated by Harrington in 1910, has been accepted by some scholars, but there has been little further work. Material for detailed comparative work is not published, but a preliminary statement can be made. Comparison of about 100 Aztec-Tanoan forms from Whorf and Trager's work with Harrington's Kiowa vocabulary show 28 possible cognate sets with some evidence of sound correspondences. [D. H.]

Kiowa and Tanoan. By George L. Trager and Edith Crowell Trager. American Anthropologist, vol. 61, no. 6 (1959), pp. 1078–1083.

The Tragers comment on Wick R. Miller, "A Note on Kiowa Linguistic Affiliations." Connection of Tanoan with Zuni now seems doubtful, since Newman's Zuni dictionary, and a speculative Proto-Tano-(Kiowan)-Zunian stage is omitted, pending further evidence, taking Proto-Kiowan-Tanoan directly back to separation from Proto-Uto-Aztecan, their joint ancestor being termed Proto-Azteco-Tanoan.

Miller's comparisons, despite distance and limitations of materials, show the Kiowa-Tanoan relationship is certain. The authors wish to substantiate it with statement of the evidence they have, though complete comparative study is not ready. Their previous work on the relationship is reviewed. 50 Kiowa-Tanoan comparisons are presented (Kiowa data from Edith Trager, Taos data

from George Trager), and the sound correspondences listed and discussed. The authors state: "We hold that from now on there should be no further question as to whether Kiowa is related to Tanoan" (p. 1082). [D. H.]

Proto-Siouan Kinship Terminology. By G. H. Matthews. American Anthropologist, vol. 61, no. 2 (1959), pp. 252–278.

Proto-Siouan kinship terms are reconstructed and the development of the modern terminologies discussed. Terms are reconstructed in the general meanings of *father*, *mother*, *son*, *daughter*, *grandfather*, *grandmother*, *older brother* (*male Ego*), *older brother* (*female ego*), *younger brother*, *older sister* (*female ego*), *sister* (*male ego*), *younger sister* (*female ego*), *husband*, *sister's husband* (*male ego*)/*husband's brother*, *brother-in-law* (*male ego*), *wife*, *wife's sister/brother's wife* (*male ego*), *husband's sister/brother's wife* (*female ego*), *sister's daughter* (*male ego*), *brother's daughter* (*female ego*), *mother's brother*. Nine charts of an original type outline the relations of the reconstructed terms to the term of the daughter languages. Internal reconstruction of some of the Proto-Sioun terms is used to interpret some features of individual languages and to suggest some developments from Pre-Siouan to Proto-Siouan. The conclusion is reached that Pre-Siouan had an Omaha-like kinship system.

(This result is in contrast to Murdock's reconstruction of a Crow-like system on the basis of the structural features of four cases and an evolutionary theory of sequences of types of kinship system. (G. P. Murdock, Social Structure (New York: Macmillan, 1949)). [D. H.]

The Technical Vocabulary of Barotse Jurisprudence. By Max Gluckman. American Anthropologist, vol. 61, no. 5 (1959), pp. 743–759.

Sir William Holdsworth (in his History of English Law) said that primitive law has no technical vocabulary. The Barotse distinguish sharply between holdings in different kinds of land and holdings in different kinds of chattels, yet do this with a limited vocabulary to describe proprietorial rights and duties. Judges operate with virtually a single concept to define relations between persons and things. Semantic analysis of Barotse usage in context shows Holdsworth wrong, if he meant that primitive legal systems lack any refined and developed vocabulary. Terminology for types of rights and duties may be relatively simple; on Barotse evidence, there may be only one major term to define relations between persons and property. But there is a complex vocabulary in the Law of Persons, and a complex vocabulary to define different kinds of property.

In short, the Barotse have but three terms differentiating relationships between a person and other persons and things (a poverty Holdsworth emphasized as general); but definition of these relationships is implicit in the terms for social positions considered in relation to one another, and in the names of things themselves.

Detailed examples of application of the terms mung'a *owner* and bung'a *ownership* are presented. Evolutionary perspective on the relation of vocabulary to culture is implicit in the recurrent explanation that the Barotse situation is of the sort to be expected in a society dominated, as Maine said of all early societies, by status.

(Such analysis of legal vocabulary (undertaken by British social anthropologists such as Gluckmann, Bohannon) should be related to the work on problems of cultural focus and semantic field of Nida, Conklin, Frake and others, and to the analytic techniques that these are developing). [D. H.]

Folk Song Style. By Alan Lomax. American Anthropologist, vol. 61, no. 6 (1959), pp. 927–954.

Lomax proposes a new science of musical ethnography, based on the study of the musical styles of mankind. It is unscientific to focus on formal elements torn from con-

text; musical reality is three-quarters composed of the characteristic pitch and timbre of the voice and the vocal technique, the facial and bodily tensions (and their underlying emotions), the degree and kind of group participation, and the social background. The new concept of musical style includes the formal musical patterns within this context. A musical style is learned as a whole and responded to as a whole. The child begins to learn the musical style of his culture as he acquires the language and the emotional patterns of his people. This style is thus an important link between an individual and his culture, and later in life brings back to the adult unconscious the emotional texture of the world which formed his personality.

There appear to be ten or more musical style families in the world, and a preliminary description is given. These styles have spread over large areas and appear to change more slowly than any other human art. The sexual code, the position of women, and the treatment of children seem the social patterns most clearly linked with musical style. Possibilities of historical and behavioral analysis by means of musical style are indicated. G. L. Trager, "Paralanguage: A first approximation" is cited.

(The author in effect outlines the dimensions for analysis of one type of speech (plus music) situation. Important connections with the ultimate systematization of paralinguistics are implicit, as is a challenge for a new ethnography of speaking: are there speech styles of similar geographical and historical scope?) [D. H.]

Taos III: Paralanguage. By George L. Trager. Anthropological Linguistics, vol. 2, no. 2 (1960), pp. 24–30.

A field study during the summer of 1959 at Taos is reported. The objective was to record and analyze the paralanguage phenomena accompanying the speaking of Taos in natural situations. The characteristics of the two informants and of the materials are described, and the process of analysis illustrated. The general scheme for recording paralanguage (based on observation of English) was found adequate with addition of one new category, articulation placement (projected, retracted). Paralinguistic analysis presupposes command of the language and the rest of the culture. A great deal more study is needed before paralanguage material can be synthesized into a system. [D. H.]

Paralanguage: A First Approximation. By George L. Trager. Studies in Linguistics, vol. 13, nos. 1–2 (1958), pp. 1–12.

Trager here reviews the development of the field of paralinguistics, outlines the place of paralanguage among other communication systems using the vocal apparatus, describes the types of paralinguistic phenomena so far discovered, comments on correlations with kinesics, and presents a tentative set of symbols for recording paralanguage. The main framework is of VOICE SET as a background against which are measured VOICE QUALITIES and VOCALIZATIONS (these two together constituting paralanguage), found in systematic association with language. Vocalizations comprise VOCAL CHARACTERIZERS, VOCAL QUALIFIERS, and VOCAL SEGREGATES. [D. H.]

Semology: a linguistic theory of meaning. By Martin Joos. Studies in Linguistics, vol. 13, nos. 3–4 (1958), pp. 53–70.

This treatment of meaning differs from current Semantics in being entirely formal (depending on the occurrences, text combinations, and structural interrelations of linguistic forms), and from current linguistic treatments of meaning in attempting to be exhaustive and autonomous, rather than ancillary. The Trager scheme for language and linguistics is discussed in terms of the reciprocal 'diacritic relation' (as between morphophonemes and morphemes) and a new concept, the relation of 'diplonomy' (lit., 'governance by two laws'). The

latter denotes the fact that a normal speaker may react in the same way to two kinds of impossibility, what is inherently impossible (e.g., an apico-uvular fricative) and what is impossible by virtue of a culturally acquired habit system (e.g., an Arabic pharyngeal for an untrained English speaker).

Analysis of the senses of the term CODE is described. Classification of citation slips resulted in a circle of 14 piles, such that for any citation whose placement was uncertain, the uncertainty was always in regard to neighboring piles in the circle (without gap), and always an odd number of piles. The ring is said so far not to have been established by linguistic criteria, since the same circle would have resulted if the slips had been German translations of the English. It is shown how RIGID CODE, STRICT CODE and others are 'collocations' in the sense that they confirm parts of the sequence of the 14-member ring, and in purely linguistic terms, so that CODE may be taken as having one 'sememe' with '14 allosemes'.

The referential function of language is defined by the diplonomous relation between elimination of certain candidates for election as referent of a term, (a) linguistically, by collocations, and (b) behaviorally, by wandering of the listener's limited attention. Connotation is then explained in terms of collocations and sectors of circles such as that for CODE. Joos suggests that "meaning is the result of subtractions principally, but also of additions by way of connotation, and that sentences mean what they do, so to say, BY DEFAULT, the competing meanings having been eliminated in one way or another" (p. 69).

(An abstract is always unjust to the expository care of an author, but the point is especially true here). [D. H.]

Review of Stanley S. Newman, Zuni dictionary. By Harvey B. Sarles. Studies in Linguistics, vol. 14, nos. 1–2 (1959), pp. 39–40.

An attempt to compare Tanoan (Taos in particular) with Zuni, using Newman's dictionary, is mentioned. The author found stem comparison difficult because not aware of Newman's criteria for establishing stems. Splitting up stems with similar English translations for both Taos and Zuni in many different ways, he found few (less than four per hundred of 'common items') which showed any similarity. These similarities showed no consistency, and it was therefore concluded that Taos (Tanoan) and Zuni were very distantly, if at all, related. [D. H.]

Phoneme Classes in Sayula Popoluca. By Lawrence E. Clark. Studies in Linguistics, vol. 14, nos. 1–2 (1959), pp. 25–33.

Sayula Popoluca (of the Mixe-Zoquean family) is spoken by about 4000 people in the town of Sayula, Vera Cruz in southern Mexico. The material was obtained during 1954–7. By phonetic criteria, there are two major classes of phonemes, consonants and vowels, subdivided into voiceless:voiced stops /p t k b d g/, glottal stop:spirant /ʔ h/, affricates:sibilants /c č s š/, labial: non-labial nasals /m n/, glide continuants /y w/, trilled:lateral liquids /r l/, and into high:low /i ʌ u e a o/ (front, central, back). Minimal contrasts of stress have been observed, and four contrastive pitches are suggested.

By distributional criteria, consonants are treated with reference to the syllable, and syllables with reference to the utterance. A table of consonant clusters is given. The phonemes /f v đ r/, introduced by Spanish loans, constitute a class of restricted distribution, and a separate table of clusters is presented. There are six types of contrastive syllabic nuclei: /v, vh, v : , v : h, vʔ, vʔh/. All syllables occur with initial consonant, and zero, one, two or three consonants may occur following vowel nucleus without /h/, zero, one, or two following vowel nucleus with /h/. [D. H.]

Selected Readings in General Phonemics (1925–1959). Compiled by Thomas A. Se-

beok. Studies in Linguistics, vol. 14, nos. 1–2 (1959), pp. 43–47.

This list of 51 varied items has been compiled in connection with the teaching of phonetics, and is intended for use by beginners in linguistics. [D. H.]

Field work in linguistics and anthropology. Compiled by D. H. Hymes. Studies in Linguistics, vol. 14, nos. 3–4 (1959), pp. 82–91.

This annotated list has four sections, Linguistics in ethnographic field work and *vice versa*, Field work: general discussions, Field work: specific discussions of linguistic methods, and Texts and text analyses. The sections list 33, 22, 41, and 29 items, respectively. [D. H.]

The Meaning of Kinship Terms. By Anthony F. C. Wallace, and John Atkins. American Anthropologist, vol. 62, no. 1 (1960), pp. 58–80.

This article reviews procedures for arriving at productive (i.e., prediction-permitting) definitions of kinship terms. Such procedures, generally known as componential analysis, go beyond the non-productive listing of kin types, although they utilize no information that is not already encoded in kin-type lists. Wallace and Atkins examine the logic of existing analyses and point up sources of indeterminancy in them (e.g., the selection of terms and their denotata, the selection of logical operators, the selection of dimensions of contrast). Several alternative componential solutions may equally enable the investigator to predict how a given kin type will be categorized. These alternative, extensionally equivalent, solutions are all 'structurally valid,' but Wallace and Atkins challenge the assumption that they are all equally 'psychologically valid': . . . "while more than one definition may be psychologically real, in the sense of representing how users think with and about that term, one or more definitions may be real only in a structural sense, even though such definitions must be extensionally equivalent to psychologically real definitions." (78) Nor is logical elegance a measure of cognitive saliency. The psychological reality of definitions cannot be determined from the procedures of componential analysis themselves. One requires information about cognitive behavior not contained in kin-type lists. Wallace and Atkins consider the development of procedures for discerning the cognitive processes of one's informants to be a crucial methodological problem for anthropology and for behavioral science in general. (The references to "Jay Romney" (59, 80) should read "A. K. Romney.") [C. F.]

3. European publications abstracted by Dell H. Hymes:

The London Group of Linguistics. By Josef Vachek. Sborník Prací Filosofické Fakulty Brněnské University, Ročník, vol. 8 (1959), pp. 106–113. Brno.

Vachek surveys the work of the London group on the occasion of Studies in Linguistic Analysis 1930–1955 and the publication of J. R. Firth's Papers in Linguistics, 1925–1951. The London group is in virtual accord with the group of Prague on many points, including its functional approach, stressing the multiform and conventional character of situational patterns. The two groups differ on a number of matters of theoretical conception and practical procedure, however, and the most important theoretical difference concerns the systematic character of language. The Prague group directly postulates the systematic nature of language as a working hypothesis about reality, while the London group arrives at recognition of it indirectly. Noting the variation of a language with roles, Firth states: "Unity is the last concept that should be applied to a language. . . . There is no such thing as *une langue une* and there never has been." Vachek notes that all functional styles share grammatical structure and basic stock of words and phonemes, and adds a functionalist argument: the various functional styles are mutually exclusive as re-

gards their applicability to different types of social situation, hence in complementary distribution, hence the very existence of such styles confirms the unity of a language.

(This gives a language the unity of a structural UNIT. Note, however, Jakobson, Fant, Halle, Preliminaries to Speech Analysis (1952), p. 12: "Two styles of the same language may have divergent codes and be deliberately interlinked within one utterance or even one sentence. For instance, urban colloquial Czech is a whimsical oscillation between the literary language and vulgar Czech, each of them displaying its own phonemic pattern." If functional styles contrast, have identificational-contrastive features, then the unity of a language is that of a structural SYSTEM). [D. H.]

Some Remarks on Uralic Numerals. By F. Kovacs. Acta Linguistica (Academiae Scientiarum Hungaricae), vol. x, nos. 1–2 (1960), pp. 117–129.

The author notes that correspondences in numerals are lacking between the Fenno-Ugric and the Samoyedic languages. Research into the problem is said to have failed because of a wrong approach: true (abstract) numerals should not be expected at the stage of civilization at which the Uralic primitive people lived (at best neolithic). The present numerals systems of the Uralic languages must have had separate beginnings. Some etymological relationships might be traceable, since there would have been some system of counting, words denoting quantities. Numerals of the so-called primitive languages suggest by analogy what kinds of quantity words to expect: terms having to do with parts of the human body, and counting gestures. Wider perspective, bringing into comparison such words, may discover the etymology of some of the present numerals. The author has concluded that the Hungarian husz *20*, and its corresponding Fenno-Ugric forms, can be traced to the Samoyed word hāsa-, etc., *man*.

Thus numerals cannot be considered essential for determining genetic relationship. Probably the further one goes back into the past the lesser the importance of numerals as evidence. [D. H.]

The Name Contoocook

Gordon M. Day

The name Contoocook is now borne by a lake, a river, and a village in southern New Hampshire.[1] From 1733 to 1760 it was the name of the New Hampshire township which on the latter date was incorporated under the name of Boscawen,[2] but prior to 1733 only the river was known as Contoocook to the English colonists.

A number of attempts to analyse this name have been made during the last hundred years, but without disparagement these must be considered guesswork in view of the fact that none of the authors had seen the full Indian name. In 1852, Judge Chandler E. Potter assumed the editorship of The Farmer's Monthly Visitor[3] and for two years wrote prolifically in its pages about the New Hampshire Indians. He reworked part of this material for Schoolcraft's magnum opus,[4] and the numerous place-name etymologies in it have influenced almost every writer on the subject since that time. By the repeated use of a few words and parts of words from Williams[5] and Cotton,[6] and of others whose origins have defied research, he analysed New Hampshire Indian place names with great assurance.[7] Of Contoocook he wrote, "Auke, a place . . . Kongkaunt, The crow . . . Contoocook, Kongkaunt, auke."[8] Ballard followed Potter without acknowledging the source and wrote, "The Contoocook was the 'Place of the Crow'."[9] True acknowledged a debt to Ballard and wrote, "Contoocook, from Konkontoo,—a crow," but he queried this meaning and seemed to prefer "Contecook—Stream-place, or up-stream place" from "Conte—up stream," a form I have found no where else.[10] Douglas-Lithgow repeated "Crow place or river."[11] It appears that the crow theory originated with Cotton's 'kongkont' or Williams' 'Kaukont' and that both Potter and True exercised some freedom in spelling it.

A break with this tradition, as well as considerable ingenuity, appears with Coffin's suggestion that 'Contook-' might be an onomatopoeic rendering of the call of the bittern, a bird which is still found on the

[1] The data for this paper were gathered in the course of research made possible by grants from the Spaulding-Potter Charitable Trusts of Manchester, New Hampshire.

[2] Ebenezer Price, A Chronological Register of Boscawen, in the County of Merrimack, and State of New Hampshire, from the First Settlement of the Town to 1820 (Concord, 1823), p. 47.

[3] National Cyclopedia of American Biography, 7.538 (1897).

[4] Henry Rowe Schoolcraft, Historical and Statistical Information, Respecting the History, Condition, and Prospects of the Indian Tribes of the United States, 5 volumes (Philadelphia, 1851–7), 5.217–237.

[5] Roger Williams, A Key into the Language of America, Rhode Island Historical Society Collections, 1.17–163 (1827).

[6] Josiah Cotton, Vocabulary of the Massachusetts (or Natick) Indian Language by Josiah Cotton. Massachusetts Historical Society Collections, 3rd ser., 2.147–259 (1830).

[7] Chandler E. Potter, Appendix to The Language of the Abnaquies, or Eastern Indians, Maine Historical Society Collections, 4.185–195 (1856).

[8] Chandler E. Potter, Language and Religion of the Pennacooks, The Farmer's Monthly Visitor, 13.321–324 (1853), p. 323.

[9] Rev. Edward Ballard, Indian Mode of Applying Names, New Hampshire Historical Society Collections, 8.446–452 (1866), p. 449.

[10] N. T. True, Collation of Geographical Names in the Algonkin Language, Historical Collections of the Essex Institute, 14.15–71 (1868), p. 147. It is possible that True deduced this form from Vetromile's statement regarding the St. Croix River, "Its real Indian name is *Peskadamiukkanti, it goes up into the open fields.*" The Abenakis and their History (New York, 1866), p. 54.

[11] R. A. Douglas-Lithgow, Dictionary of American-Indian Place and Proper Names in New England with Many Interpretations, . . . (Salem, 1909), pp. 70, 393.

lower reaches of the Contoocook River.[12] Masta suggested Nik8ntekwok *the branch ahead*[13] no doubt as the result of his familiarity with a branch of the St. Francis River which is known by this name to the Indians.[14] As a native speaker of the St. Francis dialect he might have used, but did not, two homophonous stems which earlier writers probably did not know: kǫt *hidden* and kǫt *leg*. Hidden River would be appropriate if the mouth of the river were hidden, which it is not; Leg River seems to have no justification. Smith merely suggested that the final -ook of the name might mean *at*, although his work shows Potter's influence elsewhere.[15]

Against the background of these efforts, it is gratifying to discover on John Gardner's plan of the Merrimack River a form which is longer by one syllable.[16] Gardner's plan is undated, but a number of facts point to ca. 1673 as the date of its drafting, and the data it presents have been variously attributed to the Woodman survey of 1638 and to the Willard-Johnson survey of 1652.[17] On this plan, between 'Peny Cook' (Concord, New Hampshire) and the forks of the Merrimack, a river which can be only the Contoocook is shown entering the Merrimack from the west. Written parallel to the course of this river is a name which is perfectly clear on the Kimball facsimile except for two characters. It may be rendered tentatively 'Pacuntehu.' The 't' is only slightly smudged and only slightly in doubt. The 'e' could easily be interpreted as any other rounded lower-case letter, as a fold in the original map seems to have passed through this character rendering it quite undecipherable in the photograph. In the photograph of the Putnam copy, there is likewise a smudge for these characters, suggesting that even Putnam with the original in front of him could not decipher them with certainty. The Berlund copy has only a scribble at this point, perhaps a deliberate one. Browne presented it as 'Pacuneshu,' which it plainly is not.

There are reasons for believing that 'Pacunteku' was intended by the original surveyor: (1) The name is clearly the name of a river and might reasonably contain either the free or bound form for *river*, e.g., Abenaki sip8 or -teg8,[18] Massachusetts sepu or -tukq;[19] (2) all the subsequent spellings of the name used by the English resembled the present spelling—Contoocook—and thus strongly suggest that 'Pacun-' was followed by some variety of the bound -teg8, tukq, etc., plus locative -k. It is possible that Gardner produced 'Pacuntehu' from 'Pacunteku' merely by failing to close a lower-case 'k,' but this theory receives only slight encouragement from the plan itself, on which thirteen 'k's' are perfectly plain

[12] F. Parkman Coffin, personal communication, June, 1955.

[13] Henry Lorne Masta, Abenaki Indian Legends, Grammar and Place Names (Victoriaville, P.Q., 1932), p. 83. Masta used "8" to represent a back nasal vowel, not to represent "ou" as did the early French writers.

[14] The Chenal Tardif.

[15] Robinson V. Smith, New Hampshire Remembers the Indians, Historical New Hampshire (Concord, 1952), p. 33.

[16] Unfortunately, the original map, which was formerly in the files of the Court of General Sessions of the County of Essex, Massachusetts, has disappeared. An exact copy to scale drawn by Charles A. Putnam in 1877, which was formerly in the New Hampshire Historical Society Library, has also disappeared, but a photograph of it is in Baker Library, Dartmouth College. A photographic facsimile of the original, bound with Kimball's paper (Note 17 below) is the best copy presently available. The Berlund sketch (bound in George Waldo Browne, The Merrimack River: Story of Its First Survey, Granite State Magazine, 1.133–140, facing p. 140) is crude and incomplete.

[17] James Kimball, The Exploration of the Merrimack River, in 1638 by Order of the General Court of Massachusetts, with a Plan of the Same, Historical Collections of the Essex Institute, 14.153–171 (1877).

[18] Sebastian Rasles, A Dictionary of the Abnaki Language in North America, Memoirs of the American Academy of Science and Arts, n.s., 1.375–574 (1833), p. 523.

[19] James Hammond Trumbull, Natick Dictionary, BAE-B 25 (1903), pp. 166, 315.

and only one—the final character of Uncanoonuk, thereon spelled "occonunech"—appears to be 'h.' It is more likely that Gardner made an error in copying the field notes or sketch of the original surveyor.

Massachusetts vocabularies are no help in explaining 'Pacun-,' but Abenaki provides us with pagan *noix*.[20] When the word Pacunteku has been offered to St. Francis speakers they have invariably responded with pagǫntékw *nut river*, implying a river where nut-trees are notable or abundant.[21] In the next appearance of the name after Gardner[22] and in all subsequent appearances, the vernacular name of the river ends in -k. This could represent Massachusetts ohke *land*,[23] a device much favored by the naive etymologists of the last century because it permitted explanation of many place names by the use of the Massachusetts vocabularies available to them. It was also used by the scholarly Trumbull,[24] whose orientation was Massachusetts. The -k could be interpreted more simply as an Abenaki- or Mahican-type locative suffix. This would harmonize with an Abenaki explanation of 'Pacun-' and would premise pagǫ́ntegók *at nut river* as the form which became shortened to Contoocook. It is irrelevant that the name on Gardner's plan does not contain a locative, since it is simply the name of the river.

The species of nut referred to was probably Juglans cinerea L., *butternut*, which is fairly abundant throughout southern New Hampshire. Juglans nigra L., *black walnut*, is not native even as far north as the mouth of the Merrimack River.[25] The *hickories*, Carya spp., are relatively rare in the region[26] and are named differently in St. Francis, as are the oaks and chestnut.[27] The case for butternut is strengthened by the facts (1) that it is present today in stands along the Contoocook River and at the mouth and (2) that, according to Coffin's testimony, the intervale at the mouth—a favorite camping ground of the Indians—was originally covered with a heavy growth of butternut, basswood, elm, and maple.[28]

That the original name was pagǫntékw *nut river* or pagǫ́ntegók *at nut river* and that the nuts to which the name referred were butternuts is therefore about as plausible as it can be without the direct testimony of a contemporary writer, a luxury place-name etymologists must usually do without. Considering the uncertain and disputed place of the Merrimack Valley dialects, it is interesting to find this name yielding to an Abenaki analysis and resisting a Massa-

[20] Rasles, p. 386.

[21] Gordon M. Day, St. Francis field notes for 1958.

[22] James Jeffrey, A Draught of the Part of the Province of New Hampshire that Lies to the Eastward of the River yt Comes Out of Winnipissiokee Pond. And the River Pimegowassel and Other Rivers that Empty Themselves Down Marrymack River, Drawn by James Jeffrey, May the 2nd, 1720. Original in the Crown Collection, British Museum. Photocopy belonging to Baker Library, Dartmouth College, was used here.

[23] Trumbull, p. 102.

[24] James Hammond Trumbull, The Composition of Indian Geographical Names, Illustrated from the Algonkin Languages, Connecticut Historical Society Collections, 2.1–50 (1870).

[25] Charles S. Sargent, The Native Woods of Essex County, Massachusetts (Salem, Mass., 1885), pp. 124–134; E. N. Munns, The Distribution of Important Forest Trees of the United States, USDA Misc. Pub. 287, Map No. 62 (1938).

[26] There is a stand of *shagbark hickory*, Carya ovata (Mill.) K. Koch, on the southeast side of Turtle Pond in East Concord, about two miles from the site of the old Indian village of Pennacook and five miles from the mouth of Contoocook River. It may be the successor of an older stand.

[27] The St. Francis terminology is pagǫ́n *nut, butternut*; pagǫ́nozí *butternut tree*; pagimén *hickory nut*; pagiménakwám *hickory tree*; watsíl *white oak acorn*; wat sílmezí *white oak tree*; anáskimén *red* or *black oak acorn*; anáskimezí *red* or *black oak tree*. The introduced black walnut is known to this generation and is called págimizí. Chestnut is now forgotten, but was formerly called wǫbimizi (P. P. Wzokhilain, Wobanaki Kimzowi Awighigan, Boston, 1830, p. 62).

[28] Charles C. Coffin, The History of Boscawen and Webster, from 1733 to 1878 (Concord, 1878), pp. 6–7.

chusetts analysis. Not that the problem of the Merrimack Valley dialects will be solved by any analysis of this name, however intensive, but the result may call attention to the Gardner map as a primary document in New England dialect study.

DARTMOUTH COLLEGE

THE DOG, THE OPOSSUM AND THE RAINBOW

DOUGLAS TAYLOR

In a recent paper (La lingüistica de las regiones entre las civilizaciones mesoamericanas y andinas; pp. 123–36 in Actas del XXXIII Congreso Internacional de Americanistas, tomo I [1959]), Morris Swadesh mentioned the wide geographical extension of some American names for the dog; and suggested, inter alia, that his reconstructed *inawa, *hawari and *yawari might go back to a primitive *hina-wari of unknown origin. It would seem that such an origin can best be sought, though it may never be found, by a comparison of the similar and apparently related forms within each linguistic family where these occur; and by a tentative reconstruction of the prototype for that family. Here I shall cite some Arawakan and a few non-Arawakan terms that appear to have a common origin; but I shall look for that origin only within Arawakan itself.

A cognate of Taino aon *dog* appears to be contained in its Island Carib equivalent, ánli (as recorded in Dominica, circa 1650, by Raymond Breton) or áũli (as recorded both in Dominica and in Central America, more recently, by myself), and in similar equivalents belonging to some other Arawakan languages, such as auri (Achagua, Maipure, Piapoco; also Guahibo and Piaroa, where it may well be a loan), anir (Wapisana) and possibly, should it come from *yani, Cauyari šani.

On the other hand, the Lokono (True Arawak) word variously transcribed as jáuale (18th century), yawáre, etc. may designate either the *rainbow* or an *opossum*; while its péru (18th century) or péro *dog* is clearly a Spanish loanword. Guinau yunali *savanna-dog* appears to be a likely cognate of the above, of Mariaté ynari and of Paraujano ieri, both the latter glossed as *dog*. From outside the family, we have Tupinambá (of the early contact period) yawar *dog*; and yawari *dog* has been recorded for the Karina dialect of the modern Barama River Carib. Finally, the 17th-century Dominican Island-Carib names of animals described as three species of marsupials, the last two belonging to the mainland (of South America), and called "renards" because of their propensity for eating chickens, are given by Raymond Breton as: manícou, aouálle, mábiritou. The first of these is still the usual name for the *opossum*, in those islands that have it, from Trinidad to Guadeloupe; and has become maníhu in the modern dialect of the Black Carib of Central America. The other two names and the animals that they designated are today unknown in the islands and, I think, in Central America.

It is tempting to seek a common origin for both sets of terms (those cited in my second and third paragraphs); and it seems justified to do so if we may conclude that Breton's Island-Carib ánli *dog* was inherited, his aouálle, like the animal to which it referred, imported. From the rather meagre data at my disposal, I would suggest as their prototype some such compound as *yawinali (I here use y and w for visual convenience only, without implying the existence of an opposition between vowels and semivowels) < *yawa *shadow* + *inali *man* or *person*; but the proposed first member apparently goes back to an earlier *inawi or *inawa; and the hypothesized compound may well date from that time. Cf.: Island-Carib iáua *shadow, shade, reflexion, image*, Goajiro -yakwa *picture*, Lokono üya(hü), -iya *shadow, image, spirit* and yáwahü *bush-spirit*, Mandauaca inaui-inaui *spectre or demon*, Catapolitani acinali and Bare heinari *man or person*, Manao herenari or yrinâli *man* and Piro ineri *person*, to-

gether with similar forms so glossed in many other Arawakan languages.

I cannot prove that, e.g., Guinau yunali *savanna-dog*, Island-Carib áūli *dog* and Lokono yáwale *opossum* or *rainbow* are cognate; but it is clear that loss or reduction of n after — and to a lesser extent before — i has occurred both in Island Carib and in Lokono (as well as in some other Arawakan languages); and that this process is more advanced in the latter than in the former language. Compare the following forms, (1) for *woman*: Carutana (and some twelve other languages) inaru, Guinau henau, Island-Carib ínharou (Breton) and hīáru (modern), Lokono hiǽru (18th century) or hiaro; and (2) for *tongue*: Carutana (and some eight other languages) inene, Guinau neni, Island-Carib inígne (Breton) and iéiē (modern), Lokono -ye.

If the words that I have cited here should have a common origin, their very diversity of shape and reference in the Arawakan languages speaks in favour of inheritance rather than borrowing. And from a purely semantic point of view, I find it hard to believe that people would long tolerate mere homonyms having such apparently irreconcilable referents as Lokono yáwale (or iáuale) *rainbow* and yáwale (or iáuale) *opossum*. Yet the meaning ascribed to my tentative reconstruction, *yawinali (or *inauinali) *shadow-man*, is unsatisfactory; although, or just because, it admits of alternative interpretations. If, as Kroeber suggests (Anthropology, 1948; p. 669), "The dog perhaps attached itself to man as much as the reverse", and if *dog* was the primary referent of this new compound, the name requires no further explanation; and its extension or transference to the *opossum* is also understandable if this took place in a community that raised domestic fowl; for in such circumstances these beasts do haunt the homes of men, if only by night and without any desire for attachment. But although the position of the rainbow does change with the situation of the observer, its relation to the latter appears as a withdrawal rather than an attachment; and a natural explanation for the Lokono name seems to be quite improbable.

It must not be forgotten, on the other hand, that, for most if not for all those speaking the languages mentioned here, both the rainbow and the shadow are spiritual entities and not mere physical phenomena; and many of these Indians are afraid of having their photographs taken because they conceive of the image as essentially one with the shadow and the reflexion. Moreover, such part-souls may be born again after their owner's death in other than human shape. Thus, Breton says of the Island Carib: "nos sauvages n'ont jamais ouï parler de Pythagore, & néantmoins ils semblent imbus de sa métempsycose"; and the anonymous author of the Arawakisch-Deutsches Wörterbuch cites one of the Lokono as saying: dahuduparuka jawale bia daebessupa baba *if I die I may take form anew as an opossum*.

Possibly both interpretations contain an element of truth; the dog may have been called "shadow-man" because it attached itself to man; and it may have been thought to do so because it was the reincarnation of a man's shade.

DOMINICA, BRITISH WEST INDIES

A NAHUATL LOAN-WORD IN COAHUILTECO

RUDOLPH C. TROIKE

The Coahuiltecan group of languages was formerly spoken over a large area in southern Texas and northeastern Mexico. The principal source of information about one of these languages, Coahuilteco proper, is the bilingual confessional written in 1760 by Fr. Bartholomé García.[1] The book is based primarily on the San Antonio dialect (SA) of Coahuilteco, but occasionally divergent forms from the Rio Grande dialect (RG)

[1] Fr. Bartholomé García, Manual para administrar los Santos Sacramentos . . . a los indios (México, 1760).

are given. The number system for both dialects[2] is given below in phonemic transcription[3] and the composition of the terms is shown:

NUMBER	TERM	ANALYSIS
1	pil'	1
2	axtē	2
3	axtipīl'	3
4	puwānɬ'an	4
5	xūyopamāwx (RG māxʷaxūyo)	5 (RG 5)
6	cikʷās (RG axtikpīl' axtē)	6 (RG 3 × 2)
7	puwānɬ'an, ko axtikpīl'	4 + 3
8	puwānɬ'an axtē	4 × 2
9	puwānɬ'an, ko xūyopamāwx	4 + 5
10	xūyopamāwx axtē	5 × 2
11	xūyopamāwx axtē, ko pil'	(5 × 2) + 1
12	puwānɬ'an axtikpīl'	4 × 3
13	puwānɬ'an axtikpīl', ko pil'	(4 × 3) + 1
14	puwānɬ'an axtikpīl', ko axtē	(4 × 3) + 2
15	xūyopamāwx axtikpīl'	5 × 3
16	xūyopamāwx axtikpīl', ko pil'	(5 × 3) + 1
17	xūyopamāwx axtikpīl', ko axtē	(5 × 3) + 2
18	cikʷās axtikpīl'	6 × 3
19	cikʷās axtikpīl', ko pil'	(6 × 3) + 1
20	taywakō	20

It may be noted that the system is fairly regular throughout. Addition of numbers is indicated by the particle /ko/ *and*, while multiplication is expressed by juxtaposition of the terms. The only real systemic variation between the SA and RG dialects involves the number *six*. The RG form follows the pattern (N × 2), used also for *eight* and *ten*, while the SA form follows the pattern of unit terms used for numbers *one* through *five*.[4] In the terms for *eighteen* and *nineteen*, this difference is resolved in favor of the unit term /cikʷās/. The pattern (N × 2) does not continue past *ten* and *eleven*, but is replaced by (N × 3) for *twelve* and subsequent numbers through *nineteen*.

The question arises as to which is the original designation for *six*. If it is assumed that the RG form /axtikpīl' axtē/ *3 × 2* was the original one, then the computation of *eighteen* and *nineteen* would have been (3 × 2) × 3 and [(3 × 2) × 3] + 1 respectively, and they would not have matched the regularity of the preceding numbers. In fact, nowhere in the numeral system is double multiplication used. If these were the original formulae, however, then the simplification resulting from the adoption of a unit term for *six* is readily obvious. At the same time, the use of this unit term makes *eighteen* and *nineteen* regular in their formation. It is interesting, therefore, that the dialects do not differ on *eighteen* and *nineteen*, but on *six*, where the difference is less significant with regard to the system.

It may also be noted that the term for *six* is not used in the formation of *twelve*, which would be expected if the pattern (N × 2) were extended. This suggests that the shift to the pattern (N × 3) may have been due to the previous lack of a unit term for *six*. At the same time, the use of the pattern (N × 3) could have created "structural pressure" for a unit term in the expressions for *eighteen* and *nineteen* if one did not exist before.

In view of this, the SA form for *six*, /cikʷās/ (written *chicuás* by García), is of particular interest inasmuch as it closely resembles the corresponding Nahuatl term for *six*, /cikʷasē(n)/.[5] The possibility that

[2] Ibid., pp. 31–32.

[3] /c/ is used for [tš]; /ɬ/ is used for [ts]; the macron indicates phonemic length.

[4] Note that the term for *three* is a fossilized compound of *two and one:* */axtē ko pil'/. The term for *five* in both dialects contains the morpheme for *hand* /māwx/; metathesis of /xʷ/ to /wx/ before juncture is a regular feature, paralleled in Nahuatl.

[5] Fr. Alonso de Molina, Vocabulario en lengua Castellana y Mexicana, 1571 (Colección de Incunables Americanos, Siglo XVI, Madrid, 1944). Harold and Mary Key, Vocabulario Mejicano de la Sierra de Zacapoaxtla, Puebla (Instituto Linguistico de Verano, México, 1953). These will be referred to as (M) and (K), respectively.

this similarity is due to borrowing needs to be examined.

The Nahuatl term is a compound of the bound stem /cikʷa/-, apparently meaning *five*, and the free stem /sē(n)/, *one*. In Classical Nahuatl, though not in all modern dialects, the final nasal phoneme occurs only in close juncture with a following element;[6] consequently /cikʷasē/ is the normal citation form. The Coahuilteco term, on the other hand, cannot be subjected to such morphemic analysis, indicating that it is perhaps either a fossil form or a loan word.

The hypothesis of borrowing in this instance needs to be substantiated by more than linguistic similarity in a single word, or internal differences in the two numeral systems. The territories of the two languages were hundreds of miles apart: Nahuatl was spoken in central Mexico, and Coahuilteco was spoken in southern Texas and northeastern Mexico.[7] Yet the borrowing of an item in a highly structured part of culture such as the number system implies the existence of fairly intimate contacts. As a matter of fact, such conditions did indeed exist during the period of the Spanish colonization of the Coahuiltecan area, from 1575 to 1800.

Many of the early Spanish friars received their training in central Mexico, where they sometimes learned to speak Nahuatl, even to the point of giving sermons in it. During the Spanish missionization of northern Mexico, it was a frequent practice of the friars to bring with them groups of Christian Tlaxcallans from central Mexico, who spoke a dialect of Nahuatl probably not too divergent from that of the Valley of Mexico. These Tlaxcallans provided a labor force for the missions and formed a loyal cadre to help in the reduction and conversion of Indians brought into the missions. This practice is attested in numerous documents of the period.[8]

When local Indians were brought into the missions, not infrequently speaking mutually unintelligible dialects or languages, they occasionally found it expedient to learn Nahuatl. This was fostered by the need for communication among themselves and by the fact that the Tlaxcallans were often in continuous daily contact with them, instructing them in the arts of a sedentary existence, and transmitting to them the teachings of the friars. As a result, some Indians in northern Mexico became bilingual in Nahuatl and their native tongue.[9] Such circumstances would have provided sufficiently intimate contact to allow Nahuatl words to be borrowed. The effects of this transitional bilingualism on the indigenous languages is a problem which has to date received very little attention.[10]

In García's Coahuilteco text of 1760, there are three additional words of Nahuatl origin.[11] These are:

lliwat *feast*	Nah. ylhuitl (M); /ilwit/ (K)
tiōpa *church*	Nah. teopan (M); tiopān (K)
totāɬe *priest* (RG)	Nah. tetatzin (M); /totāɬin/ *our father*[12]

In view of the historical background discussed above, the presence of these Nahuatl

[6] Molina, op. cit., pp. 118–121; Key, op. cit., p. 136.

[7] Miguel O. de Mendizábal and W. Jiménez Moreno, Lenguas indígenas de México, map, Instituto Panamericano de Geografía e Historia (México, 1939).

[8] Archivo Generil de la Nación (AGN), México, Ramo Historia, Tomo 19, Exp. 28, p. 291r; Tomo 29, Exp. 5, p. 50r, Exp. 6, pp. 52–63. See also Vito Alessio Robles, Coahuila y Texas en la época colonial (México, 1938), pp. 123–132, 259, 269 ff.

[9] AGN, Ramo Historia, Tomo 19, Exp. 28, p. 291r.

[10] A possible example is given in a recent article by Joseph E. Grimes, Spanish-Nahuatl-Huichol Monetary Terms IJAL 26.162 (1960).

[11] A fourth term, /kutāɬe/ (SA) *priest*, is probably a combination of Spanish cura *priest* and Nahuatl -ɬin, an honorific suffix. An additional word, /taklaxpō/ *owl*, may equally be derived from Nahuatl /tekoloʌ/ (M) or Mexican Spanish tecolote.

[12] This term has been borrowed in a number of Puebloan languages. See Wick R. Miller, Spanish Loanwords in Acoma: II, IJAL 26.44 (1960).

words in Coahuilteco is not surprising and requires no hypothesis of prehistoric Aztec contact. The fact that these words relate to the Catholic Church definitely places them on a post-Conquest time horizon. Furthermore, the presence of these words in the text provides additional support for the Nahuatl derivation of /cikʷās/.

The subject of lexical borrowing between American Indian languages is not one which has often attracted much interest. This is probably due in part to the difficulty of discovering such forms in the lexicon of one language when neighboring languages either have not been adequately studied or are simply unknown to the investigator. In addition, comparative studies are most often directed at genetic reconstruction, the aim of which reduces the likely recognition of loan-words as such. Even where borrowings have been occasionally pointed out, their culture-historical significance is rarely noted. Perhaps with the growth of non-genetic comparison, more information on this topic may be accumulated.

GEORGETOWN ENGLISH LANGUAGE PROGRAM, ANKARA, TURKEY

A NOTE ON PREFERRED ARRANGEMENTS OF NAVAHO WORDS

HERBERT J. LANDAR

1. Certain sequences or arrangements of words are preferred to others in everyday discourse. One commonly speaks, for example, of *a great big brown bear* or *a red rubber ball*, not *a brown big great bear* or *a rubber red ball*. Preferred arrangements are crucial in the work of linguists who are interested in transformational grammar. Their observations sometimes suggest that unlikely arrangements do not occur. By assuming that unlikely arrangements, which occur with very low frequency or with practically no frequency, may be set aside somehow, one can identify the transformational relationship between English active and passive constructions, for example, as "unidirectional," since not every passive has a corresponding active. One says *the ship was seen by the shore*, but not *the shore saw the ship*. The counter observation that poetic metaphor is grammatical though sometimes bizarre does not invalidate the transformational approach; it does, however, underline the need for articulate recognition of a frequency dimension in such grammatical analysis. *The shore saw the ship* may "sound funny" to some native speakers and may be slighted by some linguists not because the sentence is ungrammatical but because it occurs with very low frequency. The native reaction, here essentially puristic, is a function primarily of sociocultural factors rather than purely linguistic or syntactic ones. The purpose of this note is to illustrate impressionistic native grading of Navaho word sequences, thereby lending color to the view of the opening sentence, and substance to the following contention of Hoijer's:

> It would seem more reasonable not to lose sight of the facts that the sub-systems of a language are inextricably interwoven, that there is a very real relationship between the formal units of a linguistic structure and the functions these perform, and that language as a whole is not, in actual fact, separable from the culture in which we find it. If these observations are indeed valid (and, it may be noted, contemporary anthropological theory offers much in support of them), then it would seem necessary to take them into account in theory, and to use, in field practice, and under proper controls, all observation of informant reaction that is open to the investigator.[1]

2. Given (1) naakii *two*, (2) ǹcaa *it is* (or *they are*) *large*, (2) łičíí? *it is* (or *they are*) *red*, (4) nómaz *it is* (or *they are*) *spherical or globular*, (5) ǯeehdíγązii bee ?ályaa *it has* (or *they have*) *been made of rubber*, and (x) ǯooł *ball* (or *balls*), and asked to arrange these forms in the best order for a Navaho

[1] Harry Hoijer, Native Reaction as a Criterion in Linguistic Analysis, Proceedings of the Eighth International Congress of Linguists (Oslo, 1958), p. 583.

sentence, an informant[2] objected that there were too many attributives for a single sentence. His order of arrangement, in two sentences, was first (x) (3) (1) and second (2) (5) (4). Coordinative arrangements with dóó *and*, e.g. (3) dóó (1) dóó (2) dóó (5) dóó (4), were characterized as "not good Navaho."[3] While the order (2) (5) (4) was preferred, the order (5) (4) (2) was considered acceptable. The informant preferred here to have the numeral first after the noun, identifying as 'incorrect' such arrangements as (1) (x) . . . , (x) (3) (1), (x) (5) (1).

3. Given (1) cin bee ʔályaa *it has* (or *they have*) *been made of wood*, (2) hastą́ą́h *six*, (3) ʔáłc'ísí *it is* (or *they are*) *small*, (4) táƛ'id *it is* (or *they are*) *green*, (5) dək'ą́ *it is* (or *they are*) *square or ridged*, and (x) kin *house* (or *houses*), a single sentence was considered possible, (x) (5) (4) (3) (1) (2); but two sentences were preferred, (x) (4) (3) and (5) (1) (2).

4. Given (1) cin bee ʔályaa, (2) dək'ą́, (3) ʔáłc'ísí, (4) naakii, (5) łəgai *it is* (or *they are*) *white*, and (x) cic'aaʔ *box* (or *boxes*), it was held that only (1) (x) occurs, not (x) (1). Permissible arrangements in single sentences were given as (1) (x) (3) (4) (5) *and* (2), as (1) (x) (3) (4) (2) *and* (5), and as (4) (1) (x) (3) (5) *and* (2). A sequence without (3) immediately following (x) was not allowed; the sequence (4) (1) (x) (2) (3) *and* (5), for example, was labeled "impossible." Preferred style again involved two sentences, first (1) (x) (3) (4), second (2) *and* (5) or, less preferably, (5) *and* (2).

5. Given (1) césǫʔ bee ʔályaa *it has* (or *they have*) *been made of glass*, (2) ʔáłc'ísí, (3) hastą́ą́h, (4) táƛ'id, (5) nómaz, and (x) ʔásaaʔ *bowl* (or *bowls*), acceptable sequences were identified as either (1) (x) (2) (3) (4) *and* (5) or (1) (x) (2) (3) (5) *and* (4); (3) (1) (x) (2) (5) *and* (4) "would be slightly funny, but would pass in a Navaho exam."

6. Given (1) łico *it is* (or *they are*) *yellow* (or *orange*), (2) díį́id *it is* (or *they are*) *rotten*, (3) bitooʔ t'óó ʔahayúí *it is* (or *they are*) *juicy, its/their juice is just much*, (4) naakic'áadah *twelve*, (5) ǹcaa, (6) nómaz, and (x) č'il łicooí dók'óžígíí *lemon* (or *lemons*), one could say (x) (1) (5) (4) (2) (6) *and* (3), but two sentences are preferable: (x) (1) (5) (4) (2); (6) (3) or, less desirable though acceptable, (3) (6). One cannot have (x) (5) (1) (4) . . . ; one must have (x) (1) (5) (4) . . . ; (4) never comes after (2), but (4) can come first: (4) (x) (1) (5) (2); (6) (3). One could end the former with (6) or (3) and put (2) in the latter in place of (6) or (3).

7. Given (1) neeznáá *ten*, (2) łəgai, (3) dək'ą́, (4) cin bee ʔályaa, (5) ʔáłc'ísí, and (x) kin *house*, the preferred sequences, in two sentences, are (x) (1) (2); (4) (5) (3). Were one to use cin bee *with wood* for (4), one could say (4) (x) (2) (1) or (4) (x) (1) (2); (5) (3) or (3) (5).

The informant was asked also to characterize arrangements of kin with individual words. In his view, (x) (4) and (x) (5) are the preferred arrangements; (4: cin bee) (x) and (5) (x) are possible but less preferable. The sequence (1) (x) must be used; (x) (1) is 'impossible nonsense.' The use of (x) (2) and (x) (3) is mandatory; (2) (x) and (3) (x) are 'impossible.'

8. Native reaction to alternative se-

[2] Data for this note were collected in August, 1955, during work of the Southwest Project in Comparative Psycholinguistics. My informant was Charley De Jolie of Kaibeto, Arizona. For aid during the writing of this note I am grateful to the Social Science Research Council and the Department of Public Health and Preventive Medicine of Cornell University Medical College.

[3] Actual sentences, e.g. ǯoołˌ łičíí? naakii *there are two red balls*, ǹcaago, ǯeehdíɣázii bee ʔályaago, nómaz *being large, being made of rubber, they are spherical*, are represented economically in part by numerals, which have the merit of emphasizing sequential variations. Use of the subordinating enclitic -go *being thus* is automatic finally in a clause other than a sentence-final clause and is not shown. The use of dóó *and*, however, as in łičíí? dóó ǹcaa *it is red and* (*it is*) *large*, is indicated below by an italicized *and*, as in (3) *and* (2). (The enclitic -go does not normally occur before the adverb dóó.)

quences of words, transcending in value the fashioning of rules on the highest level of grammatical analysis, suggests the intimate interpenetration of verbal and non-verbal aspects of behavior. Notions of the pure, the good and the beautiful are interwoven with Navaho syntactic structures. The inspired nature of this observation should not, however, obscure the scientific respectability of unweaving rainbows, and of dealing with constructions with analytical rigor, palpably apart from puristic and normative considerations.

LOS ANGELES STATE COLLEGE

INTRODUCTION TO THE SPECTROGRAPHY OF SPEECH. By Ernst Pulgram. Janua Linguarum, No. 7. The Hague: Mouton and Co., 1959. 174 pp.

FRED W. HOUSEHOLDER

There is a lesson to be learned here that took me some time to grasp. Titles should be taken seriously. After reading this book carefully three times and using it as a supplementary text in one course I was still disappointed in it. And yet I should not have been; it claims only to be an introduction and that is exactly what it is—an introduction (with a few appendices) to the textbook on acoustic phonetics that I foolishly expected to find.

Once one realizes that the main text one had hoped for is not there and was never meant to be, then it becomes possible to view this book in its proper perspective. So viewed, it turns out to be very well done, if perhaps a little out of proportion. A 164 page preface (even if 20 pages or so belong properly to an appendix) implies something like a text of 1000 pages, and I doubt if so much would really be needed. Two hundred would very likely be enough to cover the topics omitted by Pulgram which are the real meat of the subject for a linguist: (1) a detailed treatment of vowel formant theory, with numerous examples, illustrations, tables, statistics, etc. to supersede Visible Speech and the articles in JASA 22 (and elsewhere); this should be at least 50 pages in length; (2) a detailed treatment of formant transitions and other consonant cues, where many studies (most of them listed in Pulgram's excellent Bibliography) have vastly increased our knowledge since the days of Visible Speech; to both of these could be added a section on specification of various types of distinctive features, doing what the Preliminaries largely fails to do; this would require about a hundred pages; (3) detailed instructions on ways of adjusting a Sona-Graph to get the best possible pictures for various purposes (most of the narrow-band spectrograms in this book are made—perhaps deliberately—with an unusually high compression setting, making the formants difficult to read, or even see), and on methods of measuring, analyzing, interpreting and comparing spectrograms and of tabulating and graphing the results—at least another fifty pages. This is the book I wanted and needed, but which Pulgram never intended to provide me.

Once we forget about this unwritten book and look at what we are given, we find that it is, in general, an admirably clear exposition of some simple facts about acoustics, oscillograms, spectrograms—even a little (far too little) about formants—plus a few minor hobby-horses of Pulgram's.

Let me say again that in general the book is good, clear, simple, and accurate, and then go on to my minor (if not always trivial) criticisms of detail.

Several times a loose and slightly misleading statement occurs which is corrected a few pages later. For instance, from page 13 one would get the impression that the main difference between noises and tones is that the latter have a distinct pitch while the former do not. This, of course, is not true—a xylophone (for instance) is an instrument on which melodies are played using noises of definite pitch—and on page 36 we find the more accurate statement that tones have a harmonic structure (or have power at only

one frequency, if pure) while noises are composed in part of random frequencies. On page 19 English w and y are classed as voiced fricatives, a classification which (on p. 72) is attributed to "some linguists" as against a more general view that they are resonants. Who these "some linguists" are, I do not know, as Pulgram does not say, but their number must be small indeed. Once the order is reversed. On page 25 he correctly says that sones are used to measure subjective loudness, and on page 26 that decibels measure the ratio of two amounts of (objective) energy, but then on page 27 he says that decibels are "measurements of perception" opposed to (objective) watts in the same way that mels are to cycles per second. This is, of course, false. On page 35 Pulgram says that overtones are "by implication ... weaker than the fundamental," but on the next page he correctly remarks that "the so-called fundamental ... need not be among the components" of a complex tone, and elsewhere gives examples of spectra in which several other harmonics are stronger than the fundamental. Finally, on p. 13 he describes the human vocal apparatus as an assembly "for producing sounds," a teleological view which he corrects on page 18 with a list of primary functions (incomplete: the closure of the glottis is important for coughing and for straining, for instance).

In several places he makes voicing an essential feature in his definition of resonants in general and vowels in particular (pp. 15 and 41, for instance). Now of course everyone has a right to his own definitions, but this one seems particularly unwise in this book, since it is easy to show that the spectrum of a whispered vowel is essentially the same as that of a voiced vowel and produced by exactly the same resonance mechanisms, the only difference lying in the nature of the sound (tone vs. noise) which is altered by the resonance. Pulgram's statement on p. 71 seems almost to suggest that he is ignorant of this fact.

At the bottom of page 15 Pulgram asserts that the d-t, g-k, etc., contrast in English is primarily one of voicing, whereas "lax vs. tense" or "lenis vs. fortis" are secondary, "accompanying" features. This raises a real question: how can a linguist, in such cases, determine what is primary and what is secondary? All the evidence so far accumulated strongly suggests that voicing in this case must be considered secondary in the sense that it is neither necessary (voiceless b's occur in ordinary speech as well as whispering) nor sufficient (addition of a voice bar to painted spectrograms of p's without other change will not convert them into good b's; furthermore, partially voiced p's occur in ordinary speech) whereas other features (transitions and onsets, particularly) are both.

The vowel chart at the bottom of page 19 perpetuates two old errors; (1) that i, ɪ, e, (etc.) in English form a continuous series varying only in degrees of frontness and openess, whereas in fact there is a third parameter (tense vs. lax, by whatever name you wish to call it) such that ɪ and ɛ belong to one series, i and e to another (leaving aside the question of dipthongization); indeed I have found speakers whose ɪ is more open than their e, and for nearly all speakers e is fronter than ɪ; (2) that ʌ is a peculiarly "central" vowel, not belonging either to the front series or the back one, whereas in fact ʌ bears the same relation to ʊ that ɛ does to ɪ or o to u.

In several places (p. 51, 90, etc.) Pulgram uses the word "staccato" in the peculiar sense of "keeping a level pitch throughout each tone and shifting pitch without any glide." If this were so, the organ and piano (for instance) could only be played staccato. Generally "staccato" refers to sudden attack with rapid attainment of maximum amplitude and short duration; in fact, on many instruments, a staccato note may change in pitch quite a bit during its short life.

On page 62 a statement is made which affects many later remarks and seems to

imply a misunderstanding on Pulgram's part. "In speech sounds, however, the subsidiary frequencies caused by damping are strong enough to have a noticeable effect upon the tone quality." No evidence is given, and the statement seems to me either false or exaggerated. The importance Pulgram assigns to damping appears to arise from a confusion between damped (that is broad-band) filters and damped tones. The speech tract does indeed behave like a battery of damped filters, but that does not mean that they perform their function by damping the fundamental tone. Passages which reflect this confusion appear on page 63 67, 89–90, 95, 107–8, etc. It is almost certain that the damping involved in human speech is of negligible importance, and certainly is not the essential, crucial factor that Pulgram seems to believe.

The diagram (Fig. 15) on p. 86 shows rather impossible positions for i and a; indeed a complete glossectomy would be needed to achieve the position indicated for a.

On page 87 Pulgram speaks of the "position of the tongue, jaw, lips, and teeth" as "four parameters," apparently implying the possibility of moving the teeth independently of the jaw. Though lower plates do exist, I do not think many languages have contrasts which depend on their presence.

A confusion of the "etic-emic" contrast with the "token-type" appears several times in the book, e.g. p. 94 "the successive segments of the speaker's utterance which are called (allo-)phones of the phonemes," p. 145 "all those phones, that is, events of articulation," and similarly in many other passages. It is true, as Pulgram says, that a phoneme may be considered to be a class of phones (generally from one to five in number), but both a phoneme and a phone may be regarded as classes of phoneme-tokens and phone-tokens (whose number would be very great in most speech communities, though not actually—as is sometimes suggested—infinite). This confusion is inextricably involved in Pulgram's definitions of his new units—'Spectrophones' (p. 94), 'spectrophonemes' (p. 156, etc.), 'spectrographemes' (p. 167), 'oscillophonemes' (p. 53), so that they turn out to be relatively trivial and useless. This is not to say that with suitable definitions some of the terms might not ultimately be of some use; but as Pulgram defines them they are merely cute words.

The charts and descriptions of equipment in the book are in the main applicable to the machine at the University of Michigan (on which the spectrograms and amplitude displays were made), but not always to the standard models sold by Kay under the trade name of Sona-Graph. For instance: (p. 98) on the Kay machine the strip of paper used is about four inches wide (not a little over two inches); the loop and the drum are mounted on the same axis (pp. 99–101) not separately; the amplitude display is a continuous line graph, not (as in fig. 31, etc.) a bar graph. It would have made the book more useful if Pulgram had taken account of these points, even though they are minor ones.

Throughout the whole discussion of filters, Pulgram speaks as if a perfect "undamped" filter, with a pass-band width of one cycle, were not only possible, but the natural thing to expect, and that it was a piece of sheer genius when someone managed with difficulty to devise a damped filter with a 50 cycle or wider band width. Of course the fact is that the latter type is the only sort that is commercially available, and that a perfect 'undamped' filter is a virtual impossibility. For passages colored by this viewpoint, see (for instance) pp. 107, 108, 118, 124 (where the confusion about 'damped' sounds is also present).

In several passages (135, 140, 143) Pulgram criticizes narrow-band spectrograms severely, saying that only broad-band spectrograms are suitable for studying formants. This is just not so. I have made and studied several thousand spectrograms

in the past eight years, and I have yet to find any purpose related to formant study for which broad-band pictures are superior to narrow-band. One or two phenomena connected with extremely rapid changes (consonantal releases and the like) show up a little more clearly, perhaps, on broad-band pictures, but in general the narrow-band spectrogram is preferable for every purpose. It is true that the narrow-band spectrograms in this book are rather poor (e.g. figs. 29, 30, 31), but that is because the machine has been adjusted to emphasize the harmonics and obscure the formants. With a different compression setting, the story would be quite different. If Pulgram had given broad-band spectrograms of a high soprano voice, the superiority he claims would no longer be visible.

A very puzzling statement appears on pp. 136–7: "The absolute position and the width of the formants themselves have little to do with the distinctive quality of the vowel; instead, they are related to the pattern of formant frequencies, that is to say, to articulation. In other words, absolute formant levels are determined by the fundamental pitch, formant width by the idiosyncrasies of individual articulation." As nearly as I can understand this, it appears to be false. The 'absolute level' of (say) the second formant of the vowel in *bad* as pronounced by me will remain the same whether I say it with a fundamental pitch of 90 or 190 cps or if I whisper it. The fundamental pitch becomes relevant only when it is so high as to provide no power or inadequate power in the band covered by the formant, or excessive power in the space between two formants, and this happens (in the main) only in song, not in speech. The formant levels are to some extent affected by idiolect, by context, by age and sex (as Pulgram notes elsewhere), but not by the fundamental pitch.

The supposition (p. 151) that the human brain performs a rapid binary analysis of every phone in turn in order to pin it down in a "20 questions" manner strikes me as naive in the extreme. Whatever utility binary features have (and I believe that this is considerable) it is not as reflecting successive operations of the brain (which normally does not bother to identify phonemes at all, or anything smaller than morphemes).

In what sense was there ever an "unvoiced /s/" in *observe* or a "voiced /b/" in Latin *observare* (p. 159)? If the b is responsible for the voicing in *observe*, what accounts for it in *deserve* or *reserve* or *possess*? And why no voicing in *obsess* or *absurd*? As for *observare*, even the Latin grammarians (see Sturtevant's Pronunciation §198b.) inform us that bs was never distinguished from ps. Nor is it true to say that noises (such as fricative consonants or stop explosions) have only "an odd composition of frequencies"; s and š, at least, have quite distinct pitch bands, and melodies can be produced with them if such a fancy seizes you.

The "48 channel spectrograph" so extravagantly praised as a "recent development" on pp. 168–170 does not seem conspicuously different from the 29 channel machine described already in Visible Speech and peddled by Kay under the name of Sonalator. Either one has the disadvantage that since photographs require processing, any permanent record will not be as quickly available as the standard sound spectrogram.

But again, if you remember the word Introduction in the title, you will not be disappointed in this book, though it does not replace Joos' Acoustic Phonetics. At the least, it is available.

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ROBERT H. LOWIE ETHNOLOGIST: A PERSONAL RECORD. By Robert H. Lowie. Berkeley and Los Angeles: University of California Press, 1959. Pp. x, 198.

C. F. VOEGELIN

Like Schnitzler's affairs of Anatol in baroque Vienna, Lowie's ethnologic affairs

also have a dimension of the baroque. There is a kind of symbolic interest in both, each in his own sphere, which transcends what is personal in biography. The affairs of Robert Lowie are a thrice told tale to the reviewer: (1) heard from the lips of older graduate students and friends of Lowie, as Paul Radin; (2) later, from Lowie himself, who privileged his advanced students to hear directly the professional autobiography which now, (3), appears in print. All three versions agree extraordinarily.

Lowie was wonderfully articulate, but not wholly so. Were he a wholly articulate man, he would have extended the title of the first chapter of his autobiography from 'An ethnologist is born' to 'An ethnologist is born in Vienna'. Two of the three fundamental values in Lowie's life were being an ethnologist—i.e., obtaining an overarching view of all cultures on earth (and he succeeded more than any other anthropologists of his generation); and living personally in a style reminiscent of his image of Vienna (further identification would be tantamount to making public what Lowie evidently preferred to keep private, since he does not reveal it in the published record).

The third fundamental value in Lowie's life was being honest and loyal. If he spoke at all, he was literally honest, without reservation. When honest criticism might conflict with a loyalty, Lowie would choose to be silent.

Space permits discussion of only one aspect of Lowie's ethnological experiences —the opaque barrier that so frequently plagued him in his eagerness to see cultures clearly through direct field work: that barrier was the interpreter. Like the poor and taxes, the interpreter is still with us, whether in the United Nations or in nationalistic Africa. In Lowie's view and in all of his numerous field trips (save the final one), there is no escape from him. And since the interpreter cannot keep entirely clear of distortion in translation, he is disturbing to honest souls—even to those who, like Lowie, are loyal to their interpreters and refrain from explicit criticism.

There is no escape . . . The languages involved in field work are too numerous and too difficult to master—so Lowie used interpreters instead of learning Shoshoni (p. 12 ff.). Later, he enticed a Black-foot interpreter to work for him by his famous exhibition of string figures (p. 16 ff.). The Crow presented fewer problems than Lowie's two previous experiences because Crow interpreters turned out to be plentiful and willing (p. 19 ff.). Informants came to Lowie unhesitatingly, including braves; their personal experiences were told (through interpreters) 'with a Homeric grandeur that has haunted me ever since.' (p. 20).

Despite this most appreciative response to the Crow phrasing of the Plains type of culture, Lowie kept on sampling other cultures. At Lake Athabaska, most informants asked for payment in lard or flour or a shirt; here Lowie could speak German to an Alsatian priest, and hear French, English, Chipewyan, and Cree (p. 31 ff). But a difficulty arose: Lowie's interpreter died, 'and it would not be easy to get a substitute.' (p. 35).

So Lowie returned to the Crow (pp. 41–66).

He turned also to a wide variety of other cultures in native America, never failing to point out that he was dependent upon interpreters; e.g. 'in 1912, when I came to the Ute of Navaho Springs, thirty eight miles from Mancos, Colorado, I had to leave after a few days for want of a single person who spoke intelligible English.' (p. 89).

The 'most complex culture' in his American sample was 'the Hopi of forty years ago' (p. 68). The Hopi could be observed in relevant action, for 'in essence the aboriginal culture had remained a going concern' (p. 68). And in fact Lowie did observe the Hopi live their daily mesa life; seeing this left a memory recounted without the ubiquitous assertion of dependence on

interpreters; and an impression upon the reader that though Lowie grasped the salient and essential point of Hopi culture, he did not like it (pp. 67–75).

To the end of his life, Lowie liked best those 'most satisfactory informants' of all—the Plains Indians who, 'once launched on an exposition of a particular subject, would discourse fully and expansively' (p. 81). The same might be said of Robert H. Lowie; here the verbal style of the ethnologist matches the verbal style of the culture selected for most intensive investigation. It is even possible that Lowie's preference in field work was to investigate culture which was vividly remembered but no longer a going concern. Whether this was indeed a preference, or an historical accident, the fact remains that Crow informants and interpreters no longer lived the culture which they expansively relived under Lowie's genial interrogation; and this is memory ethnography.

Lowie's interest in field work was not limited to obtaining memory ethnography, but extended to white personnel who had administrative relations with Indians, and who—like the ethnologist of the same generation—justified getting along without speaking the languages of the Indians. In that same generation, however, Dutch administrators were required to have a sound knowledge of Malay before going to their posts in the East Indies (p. 89); it is argued by Lowie that such Malay was worth learning, for it served as a lingua franca among the various Indonesian languages (but Robert A. Hall, Jr. argues that it was worth learning in another sense: as a technique of colonialism—that the Indonesians were kept from learning Dutch in order to enforce caste separation; that this technique boomeranged, for the Bazaar Malay, once it diffused through Dutch policy, was available as an important vehicle for Indonesian nationalism). In America it would be folly to train an administrator in Navaho because he might be transferred to the Pawnee—in Lowie's generation (p. 90). For each generation its own emphasis: now an administrator may be found who does speak fluent Navaho (Young), and according to the view of the present generation, it would be folly to transfer this Navaho speaking administrator to the Pawnee. So also in the affairs of the U. S. State Department which previously assumed no special knowledge of foreign languages for its personnel, but now provides a Foreign Service Institute to insure such knowledge.

When he set out to do 'field work in Germany', Lowie was at long last able to escape the plague which he could not, or perhaps would not, free himself of in native America: 'For once, in Germany, I had no need of an interpreter . . . ' (p. 152).

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CRITICAL SURVEY OF STUDIES ON THE LANGUAGES OF BORNEO. By A. A. Cence and E. M. Uhlenbeck. Koninklijk Institut voor Taal-, Land-, en Volkenkunde, Bibliographical Series 2. 's-Gravenhage: Marinus Nijhoff, 1958.

TOMMY R. ANDERSON

In the introduction to their discussion of the materials, the authors sum up the state of our knowledge of the languages of Borneo as follows.

> Among the four large islands of Indonesia, it is Borneo which has been least studied from a linguistic point of view. Only very few more extensive linguistic descriptions and collections of texts have been published. Other published data consist mainly of incidental remarks of explorers and travelers. . . . Bible translations and other translations of christian literature . . . are for many languages often practically the only source of information. . . . In view of the great scarcity of reliable data we have acted on the assumption that we should do best to be as exhaustive as possible . . . Even publications have been included whose linguistic value is very slight. Schoolbooks, missionary tracts, data from ethnographical literature have not been passed over . . . The long list of literature rather serves to demonstrate the poverty than the abundance of truly linguistic data.

In fact, of about 400 items mentioned, 150 are listed because they contain incidental word lists or comments on the linguistic situation in some area. Translations, tracts, schoolbooks, and periodicals given as samples of the language account for 130 more. Of the remaining 120, fifty are word lists and forty are original texts. Thus it is not surprising that of the thirty languages mentioned by Ray in his linguistic survey, only six have dictionaries, only four have grammars, and only one is regularly considered in Malayo-Polynesian philology.

But if the bibliography underscores the shortcomings of previous linguistic research, by the same token it points out the most fruitful lines for future investigations. Perhaps the most urgent need is for an up-to-date linguistic survey. The basic study, Sydney H. Ray's The Languages of Borneo, appeared in 1913. It was based on lists of about 200 words collected in different places by different people at different times. Not all parts of the island were equally well covered, and where the linguistic relationships were complicated, these short word lists did not suffice to clarify them. Although Ray's study was supplemented by several subsequent studies of particular language groups, there are still important gaps in our knowledge.

The state of our descriptive knowledge of these languages can be inferred from the summary of the bibliography given above. Ngaju is the best known, but the description given by A. Hardeland in 1858 is still the best one available. Maanyan has been described three times, most recently by O. Ch. Dahl in 1951. A grammatical sketch of Sarawak Murut was published by C. Hudson Southwell in 1949. And the Penampang dialect of Dusun was described by Fr. A. Antoniessen in Kadazan Dictionary and Grammar (Canberra: Government Printing Office, 1958), which was still in the process of publication when the bibliography was completed. Only Sea Dayak has received independent phonological study, by N. C. Scott in 1957.

Comparative study has yet to begin. Before Dahl's attempt to relate Maanyan to Malegasay in 1951, the only language which had received attention from Malayo-Polynesian philologists was Ngaju. However, the most productive line of investigation for the philologist is probably to determine the relationships of the languages of Borneo among themselves rather than to single out one haphazardly and attempt to fit it into its place within the larger Malayo-Polynesian framework.

In conclusion, then, this bibliography will provide little comfort for the linguist who hopes to study the languages of Borneo from Europe or the United States, for really reliable data are either scarce or nonexistant. But for the linguist who can go to Borneo, the bibliography will provide both a guide to the tasks that most need doing and a survey of the materials that will be most helpful.

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BIBLIOGRAPHY OF WORKS ON THE ARAPAHO DIVISION OF ALGONQUIAN

ZDENĚK SALZMANN

During my research and writing on the Arapaho language, I have gathered what must be a very nearly complete bibliography of the subject. Since a number of items could easily be overlooked by anyone interested in Arapaho or Plains Algonquian, I think it best to commit the bibliography to print. I will greatly appreciate being informed of any pertinent item that I may have missed.

This bibliography comprises three types of sources of information on the Arapaho division: (1) sources which are primarily concerned with the language; (2) sources whose primary concern is other than linguistic, but which contain such incidental information on the language as may be of interest to linguists; and (3) sources whose primary concern is other than linguistic, but which cite linguistic forms (all sources

containing more than a score of such forms are included, as a rule).

Whenever the titles listed below are not clearly indicative of the contents, a brief note as to the nature of the information found in them is provided in brackets. References to works which are concerned with linguistic classification or typology of larger scope than that of the Algonquian family are not included. Items under individual authors are arranged chronologically.

Arthur, Fremont. Questions and Answers in Arapahoe. Nunaae Nodawa nau Hauchaneheet. Pp. 20. [English-Arapaho catechism.]

[Arthur, Fremont (trans.)]. Nun-na-a-in-ah Ve-vith-ha Hin-nen-nau Hin-nen-it-dah-need. Pp. 12. [Religious pamphlet in Arapaho (Morning Service?).]

Bloomfield, Leonard. Algonquian. Linguistic Structures of Native America (Harry Hoijer and others), pp. 85–129. Viking Fund Publications in Anthropology, no. 6, 1946, [Grouping of Algonquian, languages, reconstruction of Proto-Central-Algonquian, and bibliographies.]

Curtis, Edward S. The North American Indian. Volume V (The Mandan. The Arikara. The Atsina). Cambridge, Mass., 1909. [Pages 169–177 contain an Atsina vocabulary.]

——. The North American Indian. Volume VI (The Piegan. The Cheyenne. The Arapaho). Norwood, Mass., 1911. [Pages 167–173 contain an Arapaho vocabulary.]

Curtis, Natalie. The Indians' Book. New York, 1907. [Pages 197 ff. and 545 f. contain Arapaho song texts.]

Dorsey, George A. The Arapaho Sun Dance; The Ceremony of the Offerings Lodge. Anthropological Series of the Field Columbian Museum, vol. 4. Chicago, 1903. Pp. 228. [A number of Arapaho names with English translations are given throughout the text and particularly on pp. 28 ff.; occasional Arapaho words appear in the text.]

Dorsey, George A., and Alfred L. Kroeber. Traditions of the Arapaho. Anthropological Series of the Field Columbian Museum, vol. 5. Chicago, 1903. Pp. 475. [A number of Arapaho words are given in otherwise English text.]

Eggan, Fred. The Cheyenne and Arapaho Kinship System. Social Anthropology of North American Tribes (ed. Fred Eggan), 2nd edition, pp. 33–95. Chicago, 1955. [Arapaho and Gros Ventre kinship terms are listed on p. 45.]

Fish, Lucy E. Words, phrases, and sentences in the language of the Gros Ventres of the Prairies. [See Pilling's Bibliography, p. 194.]

Flannery, Regina. Men's and Women's Speech in Gros Ventre. International Journal of American Linguistics 12.133-135 (1946).

Gatschet, Albert Samuel. [Vocabulary of the Arapaho language.] [See Pilling's Bibliography, p. 563.]

Grinnell, George Bird. Some Indian Stream Names. American Anthropologist 15.327–331 (1913). [Pages 328–330 contain Gros Ventre stream names.]

Gross, Feliks. Language and Value Changes Among the Arapaho. International Journal of American Linguistics 17.10–17 (1951). [Sociologist's observations on the linguistic acculturation of the Arapaho.]

Hayden, F. V. Contributions to the Ethnography and Philology of the Indian Tribes of the Missouri Valley. Transactions of the American Philosophical Society 12.231–461. Philadelphia, 1863. [Pages 323–339 contain grammatical notes on Arapaho and a vocabulary; pages 344–345 contain an Atsina vocabulary.]

Hilger, Sister M. Inez. Arapaho Child Life and Its Cultural Background. Bulletin 148, Bureau of American Ethnology.

Washington, 1952. Pp. 253. [Contains a subsection "Language" on pp. 94 ff.]

Hockett, Charles F. Sapir on Arapaho. International Journal of American Linguistics 12.243–245 (1946). [Sapir's notes suggesting eastern cognates for some Arapaho words.]

Kroeber, Alfred L. The Arapaho. Bulletin of the American Museum of Natural History 18.1–150 (I. General Description; II. Decorative Art and Symbolism). New York, 1902. [Contains a brief discussion of the language and its dialectal varieties (pp. 4 ff.), lists Arapaho and Gros Ventre kinship terms (pp. 9–10 and 150), and gives Arapaho words throughout the text.]

——. The Arapaho. Bulletin of the American Museum of Natural History 18.151–230 (III. Ceremonial Organization). New York, 1904. [Arapaho words are given throughout the text.]

——. The Arapaho. Bulletin of the American Museum of Natural History 18.279–454 (IV. Religion). New York, 1907 [Arapaho words are given throughout the text.]

——. Gros Ventre Myths and Tales. Anthropological Papers of the American Museum of Natural History 1.55–139. New York, 1907. [Gros Ventre words are given throughout the text.]

——. Ethnology of the Gros Ventre. Anthropological Papers of the American Museum of Natural History 1.141–281. New York, 1908. [Gros Ventre words are given throughout the text.]

——. Arapaho Dialects. University of California Publications in American Archaeology and Ethnology 12.71–138. Berkeley, 1916. [The three parts of this most extensive account of the Arapaho language treat respectively: Dialects of the Arapaho Group; Sketch of Arapaho Proper; and Notes on Gros Ventre.]

Maximilian, Prince of Wied. Travels in the Interior of North America, 1832–1834. Trans. in Early Western Travels: 1748–1846 (ed. R. G. Thwaites), Vol. XXIV. Cleveland, 1906. [This volume concludes the translation of Travels; a Gros Ventre vocabulary is given on pp. 226 f.]

Michelson, Truman. Preliminary Report on the Linguistic Classification of Algonquian Tribes. Twenty-eighth Annual Report of the Bureau of American Ethnology, pp. 221–290b. Washington, 1912. [Pages 234–237 contain a special section on Arapaho; isolated references to Arapaho are found throughout the text.]

——. Language Studies among the Fox and Northern Arapaho Indians. Explorations and Field-Work of the Smithsonian Institution in 1927, pp. 179–182. Washington, 1928. [Page 182 contains a very brief report on the author's field work and a few comments on the Arapaho language (no forms cited).]

——. Algonquian Indian Tribes of Oklahoma and Iowa. Explorations and Field-Work of the Smithsonian Institution in 1928, pp. 183–188. Washington, 1929. [Page 187 contains a brief report on the author's field work among the Southern Arapaho and a few comments on the Arapaho language (no forms cited).]

——. Linguistic Miscellany. Studies in Honor of Hermann Collitz, pp. 37–42. Baltimore, 1930. [Section 7 on pp. 40–42—"A non-Algonquian trait of Arapaho"—contains a brief discussion of infixation within the primary stem.]

——. Some Arapaho Kinship Terms and Social Usages. American Anthropologist 36.137–139 (1934).

——. Phonetic Shifts in Algonquian Languages. International Journal of American Linguistics 8.131–171 (1935). [On pages 131–133 the linguistic position of Nawathinehena, an Arapaho dialect, is discussed; pages 133–142 contain a summary of phonetic shifts with special reference to Arapaho dialects.]

——. Algonquian Notes. International Journal of American Linguistics 9.103–112 (1939). [Comparative notes on the Algonquian family with a few references to Arapaho.]

Mooney, James. The Ghost-Dance Religion and the Sioux Outbreak of 1890. Fourteenth Annual Report of the Bureau of Ethnology, Part 2, pp. 641–1136. Washington, 1896. [Pages 954–956 contain a discussion of the divisions of the Arapaho; the subsequent pages give Arapaho song texts with English translations; pages 1012–1023 contain an Arapaho glossary.]

——. Arapaho. Handbook of American Indians North of Mexico (ed. F. W. Hodge). Bulletin 30, Bureau of American Ethnology, Part 1, pp. 72–74. Washington, 1907. [Discussion of tribal and dialectal divisions of the Arapaho; bibliography.] Atsina. Ibid., p. 113. [Bibliography.] Gros Ventres. Ibid., p. 508. [Bibliography.]

Morgan, Lewis H. Systems of Consanguinity and Affinity of the Human Family. Smithsonian Contributions to Knowledge XVII. Washington, 1871. [Pages 209 and 214 contain brief Ahahnelin (i.e., Gros Ventre) vocabularies; an Arapaho vocabulary (acc. to Smith) is given on p. 214; pages 293 ff. include an extensive listing of Ahahnelin kinship terms.]

Nettl, Bruno. Musical Culture of the Arapaho. Unpublished Master's thesis, Graduate School, Indiana University. Bloomington, 1951. Pp. 116. [Pages 68–80 contain a discussion of Arapaho song texts; these are transcribed on pp. 94–114.]

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Pajeken, Friedrich J. Die Umgangssprache der Arapahoe-Indianer. Das Ausland 62.89–90 (1889). [Author asserts that the Arapaho make use of their vocal language with utmost economy; some Arapaho words are listed.]

Pilling, James Constantine. Bibliography of the Algonquian Languages. Bulletin 13, Bureau of American Ethnology. Washington, 1891. [The following entries should be consulted: Arapaho (p. 16); Atsina (p. 17); Chase, Pliny Earle (p. 85); Ellis, Robert (p. 560); Smet, Peter John de (pp. 573 f.); Smithsonian Institution (p. 474); and Trumbull, James Hammond (pp. 496 ff.).]

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Salzmann, Zdeněk. Contrastive Field Experience with Language and Values of the Arapaho. International Journal of American Linguistics 17.98–101 (1951). [Critical discussion of article by Feliks Gross.]

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Smith, John S. [New Vocabularies West of the Mississippi.] Information Respecting the History, Condition and Prospects of the Indian Tribes of the United States (ed. H. R. Schoolcraft). Part III. Philadelphia, 1853. [Pages 446–458 contain an Arapaho vocabulary.]

Tassin, A. G. Vocabulary of the Arrapaho. [See Pilling, op. cit., p. 481.]

Uhlenbeck, C. C. Some Word-Comparisons between Blackfoot and other Algonquian Lnaguages. International Journal of American Linguistics 3.103–108 (1924). [Arapaho cognates are given.]

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[Whitehawk, Michael (trans.)]. Hethadenee Waunauyaunee Vadan Luke Vanenāna. The Gospel According to Saint Luke. New York, 1903. Pp. 102. [The text is exclusively in Arapaho.]

SEDONA, ARIZONA

"DISINHERITANCE" AND "ADOPTION"

DOUGLAS TAYLOR

By these terms I refer to the mistaking (by linguists or others) of inherited forms for loan-words, and of loan-words for inherited forms. Understandably if not excusably, the former error is more often committed by foreigners, the latter by native speakers. And it seems to me that the former, of which I have sometimes been guilty, is the more pernicious of the two; for the putative loan that has been ascribed to a likely model is rarely re-examined for a possibly indigenous ancestry, whereas a hitherto unsuspected loan stands every chance of being sooner or later recognized as such.[1] One example of either kind will suffice to illustrate my meaning; and though I had rather have taken these from what I now believe to be errors of my own making[2],

[1] A supposedly borrowed form may, of course, be ascribed to such an unlikely model as to attract further attention; as when de Goeje (in his Nouvel examen des langues des Antilles; Jour. Soc. Amér. Paris, vol. 31 [1939], pp. 1–120; p. 116) ascribes modern Central American Island-Carib ubáfu *power* to Fr. pouvoir as model. But Island Carib, in the very many forms that it borrowed from French, never substituted its /b/ for French /p/ or its /a/ for French /u/; and in only one instance (fuéfuru *pepper*, from Fr. poivre, where it may be explained as assimilation) do we find its /f/ (from earlier /p/), instead of its /u/, substituted for Fr. /v/. This word (ubáfu) is in fact a noun derived from Breton's Dominican bálipfe *fort, rude, vigoureux* (cf. Central American bináfui *morning* < binálepoule, with the same meaning, of Breton's record), which itself was evidently borrowed from (Cariban) Karina paripe, which has the same meaning. Some other examples of Island-Carib forms which seem to have been erroneously attributed to borrowing from European languages are cited on pp. 51 & 52 of my monograph, The Black Carib of British Honduras (New York, 1951).

[2] Such as, for example, my supposing modern Central American Island-Carib grígia *people of one's own kind* to have been borrowed from French Creole krityĕ (< Fr. chrétien) *human being*—equated with *Christian*; edéueha *hand over, grant* to have had Fr. dévouer as model; and (a)pátara *slap* to be a loan taken from Sp. patada (in Word 4.3 [1948], pp. 191 & 192). Since then, I have come across Lokono (True Arawak) kirikia *tribe, sort, kind, nation, own people* and apátada *strike with the hand*; which invalidate my previous suppositions and make it at least likely that these words and their Island-Carib counterparts were inherited. As for the third word, I now believe its stem to be cognate with earlier itehue-(Breton's spelling), which referred to the giving of goods and services in preparation for a rite de passage

it so happens that the most striking instances I have found come from the work of others.

Among other "stabilized English loans" in Lokono (True Arawak), Nancy P. Hickerson (in IJAL 19.3, p. 188) lists: aleti *light, lamp*; a word that seems still more English in the spelling of C. H. de Goeje (The Arawak Language of Guiana; Amsterdam, 1928; p. 232), alaiti. The latter author did not regard it as a loan, however; probably because he was familiar with its earlier shape (though he does not cite it), aruléti, as listed in the anonymous 18th-century Arawakisch-Deutsches Wörterbuch (in vol. VIII of the B.L.A.; Paris, Maisonneuve, 1882; pp. 69–165), where we find (p. 97); aruléti *Licht*; bukkalleméttan aruléti *zünde das Licht an*.

Admittedly, this in itself does not make it impossible that aruléti should contain a morpheme borrowed from Eng. light, in composition with an inherited stem present, perhaps, in the same author's: arùnnaha *luciditas, die Helligkeit* and marúnnahân *nicht lichte, nicht heiter sein* (ibid., loc. cit. & p. 144; cf. also modern Central American Island-Carib larúni hati *its-light moon* = *moonlight*). But when we find Breton's 17th-century Dominican Island-Carib (Dictionnaire caraïbe-français; Auxerre, 1665; éd. facsimile Jules Platzmann, Leipzig 1892; pp. 54 and 355): karrêleti nanichi *je suis joyeux* (whose second word means *my heart*) together with its antonym marrêleti, elsewhere listed and translated as: maraléti naníchi *je ne suis pas bien aise, bien content*, it becomes evident that both karrêleti and marrêleti (or maraléti) contain, together with the attributive prefix KA- or the privative prefix MA-, a stem cognate with Lokono aruléti > aleti *light*, of which no part can have been borrowed from English.

formerly celebrated by the Island-Carib, and to the feast held subsequently to honour the benefactors. If this later view should be correct, borrowing from a European language would in this case be out of the question.

My second example is taken from Breton's Grammaire Caraibe (Auxerre, 1667, p. 26; or nlle. éd. L. Adam & Ch. Leclerc; in vol. III of the B.L.A.; Paris, 1878), where we find: eléchoura signifie *couper*, bàra signifie *pour*; de ces deux mots ils en composent un, savoir échoubara, qui signifie une *épée, coutelas, ou autre instrument propre à couper*. For several reasons, I suspect that this is a bit of folk etymology on the part of the Island Carib themselves. In the first place, lésu *cut lengthwise* (*pare, shave, whittle*), which is the base of the first-cited verb, would hardly lose its initial consonant in such a compound as Breton proposes. Secondly, I can find in Breton's dictionary no other possible example of a verb-base in composition with -bara. Thirdly, though Lokono /b/ regularly corresponds to Island-Carib /b/ as in -bura : -bara *for, before*, and Lokono /p/ (> later /f/) to Island-Carib /p/ (> /f/ in the later Vincentian and Central American dialects), yet Lokono kás(i)para is synonymous with Island-Carib ésubara and with (Cariban) Karina supara. It would therefore seem that Breton's supposed compound, ésubara *sword, cutlass*, etc., was in reality a loan-word; and I agree with de Goeje that the most likely model is Sp. espada.

DOMINICA, BRITISH WEST INDIES

CORRECTION

In Taylor's recently published note On the History of Island-Carib Consonantism (IJAL 26.2, pp. 146–55), footnotes 13 and 14 have got badly tangled; and in order to be comprehensible should be disentangled as follows:

Footnote 13, referring to the last line of text on p. 152, finishes with the sentence ending in 'meaning' on line four of that footnote on p. 153. Footnote 14 refers to the sentence ending on line 30, column II of p. 153, which is mistakenly again tagged '13'. Its first sentence is that given by error on p. 154 under footnote 14; and it continues with the sentence beginning 'Breton's' on

line four of the footnote on p. 153. The reference on p. 154 should be numbered 15 (instead of 14); and refers (like that rightly numbered 15 on p. 155) back to footnote 4.

Other, relatively minor corrections are: (page) 149, (column) I, (line) 27: (a)pátara (not: (a)pátara); 149.I.32: Sir Wm. Young (not: Sr W. Young); 150.I.7: uacígo (not: unacígo); 149.I.40, insert colon (:) before: ponáti; 151.II last line: P nor K (not: P or K); 152.I.29: 'Karif' (not: Karif; since this is neither the native name nor a generally used English name for the language); 153.II.17: /c/ (not: (c)); 154.I.24: /g/ (not: (g)); 154.II.45: aspirated P (not: aspirated T).